

# ANIMAL KEEPERS' FORUM



**APRIL 2008**

The Journal of the American  
Association of Zoo Keepers, Inc.

**AKF Managing Editor:** Susan D. Chan • **Associate Editors:** Kayla Grams, Lovell, WY; Mark de Denus, Winnipeg, MB • **Enrichment Options Coordinator:** Rachel Daneault, Disney's Animal Kingdom • **Legislative/Conservation Outlook Column Co-Coordinators:** Becky Richendollar, North Carolina Zoo and Greg McKinney, Philadelphia, PA • **Reactions Column Coordinator:** William K. Baker, Jr., Abilene Zoo, Abilene, TX • **ATC Column Coordinators:** Angela Binney, Disney's Animal Kingdom and Kim Kezer, Zoo New England • **Proofreader:** Barbara Manspeaker, AAZK Administrative Office.

Animal Keepers' Forum is published monthly by the American Association of Zoo Keepers, Inc., 3601 S.W. 29th Street, Suite 133, Topeka, KS 66614-2054. Ten dollars of each membership fee goes toward the annual publication costs of Animal Keepers' Forum. Postage paid at Topeka, KS.

**AAZK Executive Director:** Ed Hansen, AAZK, Inc., Topeka KS

also serves as AAZK Liaison to the American Zoo & Aquarium Association (AZA)

**AAZK Administrative Secretary:** Barbara Manspeaker, AAZK, Inc., Topeka, KS

### **BOARD OF DIRECTORS**

Shane Good, Cleveland Metroparks Zoo, Cleveland, OH 44109

*President*

Denise Wagner, The Phoenix Zoo, Phoenix, AZ 85008

*Vice President*

Jacque Blessington, Kansas City Zoo, Kansas City, MO 64132-4200

Tammy Root, Indianapolis Zoo, Indianapolis, IN 46222

Bob Cisneros, San Diego Zoo, San Diego, CA 92112-0551

### **COMMITTEES/COORDINATORS**

#### **By-laws**

Chair - Gisela A. Wiggins, North Carolina Zoo

#### **Grants Committee**

Chair - Shelly Roach, Columbus Zoo

#### **Enrichment Committee**

Co-Chairs - Dawn Neptune, Utah's Hogle Zoo  
and Amy Burgess, Disney's Animal Kingdom

#### **Annual Conferences**

Coordinator - Ed Hansen, AAZK, Inc.

#### **Professional Development**

Chair - Tammy Schmidt, Peoria Zoo

#### **ICZ Coordinators**

Shane Good, Cleveland Metroparks Zoo and  
Norah Farnham, Woodland Park Zoo

#### **Ethics**

Chair - Denise Wagner, The Phoenix Zoo

#### **Awards**

Chair - Janet McCoy, The Oregon Zoo

#### **Marketing Resources**

Chair - Kristen Wolfe, Disney's Animal Kingdom

#### **Animal Training Committee**

Co-Chairs - Angela Binney, Disney's Animal  
Kingdom & Kim Kezer, Zoo New England

#### **Bowling for Rhinos**

Coordinator - Patty Pearthree, Cary, NC

#### **Conservation Committee Co-chairs**

Amanda Kamradt, Houston Zoo and  
Penny Jolly, Disney's Animal Kingdom

### **MEMBERSHIP SERVICES**

#### **ADT, EDT and ATD Forms**

AAZK Administrative Offices/Topeka

**AAZK Website** - Liaison to Webmaster

Denise Wagner, The Phoenix Zoo

#### **AAZK Historian**

Mark Levin, Plymouth Meeting, PA

**AAZK Publications/Logo Products**

AAZK Administrative Offices/Topeka

# Table of Contents

About the Cover/Information for Contributors.....	130
Scoops & Scuttlebutt.....	131 - 133
Coming Events.....	134
LAST Call for Papers - 2008 AAZK National Conference.....	136
AAZK Announces New Members.....	137
From the President: Sweet Corn for Sally - A Zookeeper's Perspective on Safety.....	138 - 143
Enrichment Options ( <i>Walking It Off: Exercise to Reduce Aggression in a Female Asian Elephant</i> ).....	144 - 146
Lee Houts Enrichment Excellence Award - Let Someone Shine!.....	146
Now Available - <i>Crisis Management in Zoos</i> - Info and Order Form.....	147 - 148
Reactions ( <i>Natural Disaster Emergency Items</i> ).....	149 - 152
Attention Photographers! AKF Seeks Color Photos.....	152
Enrichment and Husbandry of Hospitalized White-fronted Marmosets.....	153 - 155
Have You Sent AO Your Email Address Yet?.....	155
Bowling for Rhinos Yahoo® Group Established.....	155
Almost Famous: The Story of the Clouded Leopard Project and Its Rising Star.....	156 - 158
ATC Column ( <i>Using Enrichment as a Training Tool</i> ).....	159 - 161
Conservation/Legislative Update.....	162 - 168
AAZK Conference 2008: Hotel, Transportation, Registration, Program, Contests, Pre- and Pos-Conference Trip Information, etc.....	ORANGE INSERT



34th Anniversary - 1974 - 2008

## MISSION STATEMENT

American Association of Zoo Keepers, Inc.

To provide a resource and a forum of continuing education for the animal care professional and to support zoo and aquarium personnel in their roles as animal care givers, scientific researchers, public educators and conservationists. To promote zoos and aquariums as cultural establishments dedicated to the enrichment of human and natural resources; to foster the exchange of research materials, enrichment options and husbandry information through publications and conferences which will lead to a greater understanding of the needs and requirements of all animals.

*This month's cover features a clouded leopard (Neofelis nebulosa) drawn by Jessica Sutherland, a Staff Biologist at the Point Defiance Zoo & Aquarium in Tacoma, WA. The Zoo is home to two nine-year-old clouded leopards named Raja and Josie. The clouded leopard is a medium-sized cat found in Southeast Asia. Little is known about the wild behavior of clouded leopards due to their extremely secretive nature. The clouded leopard gets its name from the cloud-like spots that cover its coat and serve as perfect camouflage in the tropical rainforest habitat in which they live. They are one of the most arboreal of all cats and can run down tree trunks headfirst, climb by hanging underneath horizontal tree branches, and can even hang upside down from tree branches by their hind feet. Their tails are three feet long (the same length as their bodies) and aid in balancing as they climb. Males generally weigh around 50 pounds while females are smaller, weighing between 25-35 pounds. The clouded leopard's canine teeth are relatively the longest of any felid causing some people to call this cat the modern day saber-toothed cat. Wild clouded leopard numbers are thought to be in decline due to loss of habitat, poaching, and illegal capture for the pet trade. Scientists have no accurate estimate of true wild population numbers since they are so difficult to study. Clouded leopards are listed as endangered by USFW, classified as an Appendix I species by CITES, and vulnerable by IUCN. Thanks, Jessica!*

Articles sent to *Animal Keepers' Forum* will be reviewed by the editorial staff for publication. Articles of a research or technical nature will be submitted to one or more of the zoo professionals who serve as referees for *AKE*. No commitment is made to the author, but an effort will be made to publish articles as soon as possible. Lengthy articles may be separated into monthly installments at the discretion of the editor. The editor reserves the right to edit material without consultation unless approval is requested in writing by the author. Materials submitted will not be returned unless accompanied by a stamped, self-addressed, appropriately-sized envelope. Telephone, fax or email contributions of late-breaking news or last-minute insertions are accepted as space allows. Phone 785-273-9149; FAX (785) 273-1980; email is [akfeditor@zk.kscoxmail.com](mailto:akfeditor@zk.kscoxmail.com)< If you have questions about submission guidelines, please contact the Editor.

**Deadline for each regular issue is the 10th of the preceding month.**

**Dedicated issues may have separate deadline dates and will be noted by the editor.**

Articles printed do not necessarily reflect the opinions of the *AKE* staff or the American Association of Zoo Keepers, Inc. Publication does not indicate endorsement by the Association.

Items in this publication may be reprinted providing credit to this publication is given and a copy of the reprinted material is forwarded to the editor. If an article is shown to be separately copyrighted by the author(s), then permission must be sought from the author(s). Reprints of material appearing in this journal may be ordered from the editor. Regular back issues are available for \$4.00 each. Special issues may cost more.

#### **E-Mail Addresses:**

You may reach Barbara Manspeaker at AAZK Administrative Offices at: [aazkoffice@zk.kscoxmail.com](mailto:aazkoffice@zk.kscoxmail.com)<

You may reach Susan Chan and *Animal Keepers' Forum* at: [akfeditor@zk.kscoxmail.com](mailto:akfeditor@zk.kscoxmail.com)<

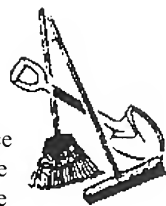
#### **Mailing Address:**

AAZK, Inc., 3601 SW 29th St., Suite 133, Topeka, KS 66614-2054

**AAZK website Address: [www.aazk.org](http://www.aazk.org)**

**BFR Website: <http://aazkbfr.org>**

# ***Scoops & Scuttlebutt***



## **Conservation Committee Seeks New Members**

The AAZK Conservation Committee is seeking new members to join our team. Since we are the newest AAZK committee, members have many opportunities to initiate new projects and shape the future of this committee. Current projects include, but are not limited to, establishing a regular column in *Animal Keepers' Forum*, and assisting conference committees and the Board of Directors with creating environmentally friendly conferences.

Our Mission Statement is:

- To promote and establish connections between AAZK members and the conservation of wildlife and their habitats.
- To provide educational resources for members and their institutions about environmentally responsible practices.

Our Vision Statement is:

- Serve as a resource that will assist members in finding in situ opportunities with local, national, and international conservation projects and to initiate new conservation projects.
- Provide contact information to coordinate educational and development opportunities with conservationists.

Applicants should be national members in good standing and have a desire to commit at least one year to the committee. Resumés, letters of interest, and inquiries may be sent to Co-Chairs Penny Jolly at [Penny.Jolly@Disney.com](mailto:Penny.Jolly@Disney.com) and Amanda Kamradt at [amanda\\_kamradt@yahoo.com](mailto:amanda_kamradt@yahoo.com). Deadline for application is **May 15, 2008**.

## **AAZK Video Night - Submissions Sought**

The AAZK Enrichment and Training Committees invite you to submit your enrichment and/or training videos to be presented at Video Night during the 2008 AAZK National Conference. Submissions should be in the following format:

- ◆ In VHS or CD format
- ◆ No more than seven minutes long.
- ◆ Good quality (steady frame, appropriate or no sound, clear picture)
- ◆ Videos may be edited for content and to accommodate time restraints.

We would like to see enrichment that encourages species specific behaviors and innovations in training that help facilitate husbandry and specific conditions. All submissions will be put onto one comprehensive CD. A complementary CD will be given to each facility that contributes a video. Please plan on having a representative present during video night to narrate your facility's submission. Submissions are **due by August 1, 2008** and should be sent to:

Rachel Daneault  
1200 N. Savannah Circle E.  
Bay Lake, FL 32830

You will be notified prior to the conference if your video is selected to be viewed at video night. Please contact Rachel Daneault [rachel.b.daneault@disney.com](mailto:rachel.b.daneault@disney.com) or Nikki Bowens [rhinogirl1@yahoo.com](mailto:rhinogirl1@yahoo.com) if you have any questions.

## **U of M Museum of Zoology Offers Gratis Access to Herpetological Publications**

Deep Blue provides access to the publications of the University of Michigan Museum of Zoology, in particular the Occasional Papers and Miscellaneous Publications, which contain many important herpetological titles..

The University of Michigan Library provides this service free as part of the UMMZ commitment to the scholarly community. Further, Deep Blue is designed to continue to grow and evolve to reflect current publishing needs identified by UMMZ faculty, staff, and students. To access UMMZ herpetological publications, go to: <http://deepblue.lib.umich.edu/handle/2027.42/49534> ~ from *The Center for North American Herpetology, Lawrence, KS* (<http://www.cnah.org>) 3-14-08

### **IRF Previews New Website**

The International Rhino Foundation has a new website. Featuring video and photo galleries and a web 2.0 guide, site visitors will find a myriad of ways to stay connected to IRF's rhino conservation efforts.

Readers can learn everything they ever wanted to know about rhinos, including their status in the wild, and how IRF programs in Asia and Africa help the rhino species most in need of protection and management. Visit at <http://www.rhinos-irf.org>



### **Recommendation for Environmental Education Resource**

We hear from Amy Deane at the Save the Chinchillas, Inc. in Chile: "I have been creating environmental educational products since 1996. And I have found the use of Sam H. Ham's book, *Environmental Interpretation, A Practical Guide for People with Big Ideas and Small Budgets*, a key to conveying our message of conservation.

The book details everything from sign creation to colors that work together. It is a great book for anyone who has a message to relate to others either working in passive (signs) or active (slide shows) educational media. It is published in both English (1992) and Spanish by North American Press, Golden, CO. (*Editor's note: I found this book available for \$16.25 used on amazon.com*)

### **A Note If You Are Joining or Renewing Membership with PayPal**

If you join or renew your membership in AAZK on the website ([www.aazk.org](http://www.aazk.org)) and use PayPal as your method of payment, please be aware of the following:

- The information we receive at our office via email confirmation from PayPal only lists the name on the credit card being used for payment. Therefore, the AAZK membership card we issue will be in that name. So, if you use a credit card other than one in your own name (spouse's, parent's, friend's, whatever), you need to email Barbara Manspeaker at [aazkoffice@zk.kscoxmail.com](mailto:aazkoffice@zk.kscoxmail.com) letting her know that a PayPal payment for your membership is coming in, but the PayPal email confirmation will be under another individual's name.
- Also, the information AAZK's receives from PayPal does not tell us the zoo or aquarium with which you are affiliated. When you pay via PayPal, we ask that you email Barbara with your institutional information so that your listing on our membership database may be as complete as possible.

### **Keeper Assistance Sought**

Meven Le Pallec, an animal keeper in La Vallée des Singes in France is doing research and collecting information on nocturnal animals. He is now hoping to establish contacts at zoos housing nocturnal species in order to gather further data on the world of night animals held in zoos. He is specifically looking for individuals at zoos who could provide information on which nocturnal or crepuscular species are held at their facility.

If you are interested in helping out with this project, please email Meven directly at [meven@lepallec.fr](mailto:meven@lepallec.fr)

## ATTENTION !

### 2007 AAZK Conference Proceedings Now Available for Download

The papers, posters and workshop summaries from the Galveston, TX 2007 National AAZK Conference are now available to download from the Member's Only Section of the AAZK website ([www.aazk.org](http://www.aazk.org)) They are available either as a complete download of all materials or as individual papers in pdf format. Proceedings will not be published in hard copy, so this will be your only way to access these materials. If you are not currently registered on the Member's Only Section of the AAZK website, you are encouraged to do so soon. You must be a current member of AAZK, Inc. in order to gain access to this section. Besides the Conference Proceedings, there is also lots of other good information available only to AAZK members in the Member's Only Section. See Scoops & Scuttlebutt from the March 2008 issue of *AKF* for further information on what is currently available there. The AAZK Board, Staff and Committees will continue to add information to this section.

So check back often to see what's new!

### The Turtle Survival Alliance To Host Conference in Tucson, AZ

The Turtle Survival Alliance will host the 6th Annual Symposium on Conservation and Biology of Tortoises and Freshwater Turtles 17 – 20 September 2008, Tucson, AZ. This will be the Joint Annual meeting of the Turtle Survival Alliance and IUCN/SSC Tortoise and Freshwater Turtle Specialist Group and has become the largest gathering of non-marine turtle biologists and captive breeding specialists in the world. Based on the recent survey results, this year's conference will feature hands-on demonstrations and workshops, concurrent sessions including a full day captive husbandry symposium, and more time for socializing. Post workshop field trips are also being planned. Once again, we are grateful for the generous support of our conference title sponsor, ZooMed.

Tucson's Sonoran Desert harbors 60 mammal species, 350 bird species, 20 amphibian species, 100+ reptile species, 30 native fish species, and more than 2000 native plant species. Hiking, bird watching, museums, and great dining are all within easy access of Tucson. The city is bordered north and south by Saguaro National Park.

**Call for Papers:** The following symposia will be featured and others will be added later: 1) Veterinary topics: Sam Rivera ([SRivera@zooatlanta.org](mailto:SRivera@zooatlanta.org)) and Greg Fleming ([greg.fleming@disney.com](mailto:greg.fleming@disney.com)), chairs; 2) Field Conservation Programs: Rick Hudson ([RHudson@fortworthzoo.org](mailto:RHudson@fortworthzoo.org)), chair; 3) Reintroduction and Recovery Programs: Rick Hudson, chair; 4) Husbandry: Paul van der Schouw ([chelidman@tampabay.rr.com](mailto:chelidman@tampabay.rr.com)), Cord Offerman ([puravida@gvtc.com](mailto:puravida@gvtc.com)), Dwight Lawson ([DLawson@zooatlanta.org](mailto:DLawson@zooatlanta.org)), and Cris Hagen ([hagen@srel.edu](mailto:hagen@srel.edu)), chairs; 5) TCF-funded projects: Anders Rhodin ([RhodinCRF@aol.com](mailto:RhodinCRF@aol.com)) and Hugh Quinn ([DoubleHQ@aol.com](mailto:DoubleHQ@aol.com)), chairs; and 6) Turtle Conservation and Research in the Southwest: Brian Horne, chair. ([BHorne@sandiegozoo.org](mailto:BHorne@sandiegozoo.org))

Those interested in speaking or presenting a poster should contact Conference Program Chairman Don Boyer ([DBoyer@sandiegozoo.org](mailto:DBoyer@sandiegozoo.org)) or one of the session chairs listed above.

The deadline to submit proposals for presentations is June 30th 2008. Please include: (1) title, (2) authors (indicate presenting author) with addresses, (3) a brief abstract (not to exceed 250 words), (4) preference for Oral or Poster presentation, and (5) indicate if you are a Student (or within one year of finishing your studies). Student presentations are only eligible for awards if the student is sole or senior author. Submit to the Program Chair, Don Boyer ([DBoyer@sandiegozoo.org](mailto:DBoyer@sandiegozoo.org)). Presenters will be notified of the status of their proposed presentation by July 30th 2008. Extended abstracts will be requested for publication in the conference proceedings later in the year. Presentations will be 15 minutes in length including introduction and questions. Microsoft PowerPoint is preferred, but presenters with slides will be accommodated. This year's poster session will be coordinated by Beth Walton. Those interested in presenting a poster should contact her for details ([walton.beth@yahoo.com](mailto:walton.beth@yahoo.com)).

Vendor booths are available for \$250 and those interested in vendor space, or in sponsoring a particular event or speaker, should contact Conference Chairman Lonnie McCaskill ([Lonnie.McCaskill@disney.com](mailto:Lonnie.McCaskill@disney.com)) for more information.

# Coming Events

**The Second UK & Ireland Regional Environmental Enrichment Conference** - April 20-22, 2008 at Bristol Zoo Gardens. 1st Call for Papers and Registration. Go to [www.reec.info](http://www.reec.info) for details or please contact Julian Chapman on [julian.chapman@paigntonzoo.org.uk](mailto:julian.chapman@paigntonzoo.org.uk)

**Animal Behavior Management Alliance (ABMA) Conference** - April 27 – May 3, 2008 - In Phoenix, AZ. Hosted by the Phoenix Zoo, Arizona-Sonora Desert Museum, Reid Park Zoo, and Wildlife World Zoo. The 2008 conference keynote speaker is Dr. Temple Grandin, and the conference includes paper and poster presentations, discussion groups, and workshops. Remember that AAZK members can receive the discounted members registration rate for the ABMA conference! For more information please visit [www.theabma.org](http://www.theabma.org) or contact ABMA 1st Vice President Raquel Gardner at [rgardner@thepxzoos.com](mailto:rgardner@thepxzoos.com)

**7th Annual Callitrichid Behavioral Husbandry and Management Workshop** - May 17-18, 2008. Hosted by the Los Angeles Zoo and Botanical Gardens, Los Angeles, CA. Free with pre-registration. This is a workshop for those working with tamarins and marmosets and will include formal presentations, posters, invited speakers, open discussions, and training demonstrations. It will cover a variety of topics such as husbandry, training, enrichment and conservation. E-mail Erin Fleming [ebright\\_fleming@yahoo.com](mailto:ebright_fleming@yahoo.com) for pre-registration form and abstract guidelines. For information contact Michelle Farmerie at (412) 365-2385 or email [mrfarmerie@aol.com](mailto:mrfarmerie@aol.com)

**Australasian Society of Zoo Keepers(ASZK) Conference** - May 23-25, 2008 - At Sydney Academy of Sports, Narrabeen, Sydney, NSW Australia. Contact [www.aszk.org.au](http://www.aszk.org.au) or [eo@aszk.org.au](mailto:eo@aszk.org.au)

**Measuring Zoo Animal Welfare** - May 29-30, 2008 in Brookfield, IL, USA. Chicago Zoological Society presents - Measuring Zoo Animal Welfare: Combining Approaches and Overcoming Challenges. Symposium information including registration and abstract submission guidelines are available at <http://www.BrookfieldZoo.org/AWsymposium>

**The 9th International Conference on Environmental Enrichment** - May 31 - June 5, 2009 in Torquay, Devon, UK. First Call for papers and Registration. Go to [www.reec.info](http://www.reec.info) for details.

**AZA (American Zoological Association) Annual Conference** - September 12 -18, 2008 at Milwaukee County Zoo, WI. For more info see <http://www.aza.org>

**35th Annual American Association of Zoo Keepers National Conference** - September 24-28, 2008 in Salt Lake City, UT. The guiding theme, "Elevating Animal Care", will focus on concepts that highlight professionalism, creativity and initiative in the realm of conservation, education and animal husbandry. Animal care professionals from all related fields are encouraged to submit high quality, original topics for consideration. Abstracts are being accepted for papers,

posters and workshops until May 1. For more information, please visit [www.utahaazk.org](http://www.utahaazk.org), contact the Utah Chapter AAZK at [utahaazk@hoglezoo.org](mailto:utahaazk@hoglezoo.org) or call (801) 584-1784. See insert this issue of AKF.

**4th IUCN World Conservation Congress** - October 5 - 14, 2008 in Barcelona, Spain. For more info go to <http://www.iucn.org/congress/2008>

**Otter Keeper Workshop** – October 9-12, 2008 - Hosted by the Oakland Zoo in Oakland, CA. The focus of the workshop will be North American river otters and Asian small-clawed otters. Topics will include: captive management issues, enrichment, training, water quality, health care, nutrition, diet, hand-raising, exhibit design, lots of sharing of information between keepers. For more information, contact David Hamilton- call 585-336-2502 or [emaildhamilton@monroecounty.gov](mailto:emaildhamilton@monroecounty.gov)

**2008 Zoological Registrars Association Annual Conference** - October 22-25, 2008. Hosted by The Saint Louis Zoo. The Sheraton Westport Chalet has been selected as the conference hotel and they have offered us the government rate of \$106 per night. The hotel provides free airport shuttle and parking. If you have any questions, please do not hesitate to contact Rae Lynn Haliday at [haliday@stlzoo.org](mailto:haliday@stlzoo.org) or at (314) 781-0900 x 372.

**Zoos and Aquariums Committing to Conservation** - January 23-26, 2009. Hosted by the Houston Zoo, Houston, TX. ZACC is a bi-annual event that promotes the role of zoos and aquariums in supporting conservation activities worldwide, both at their institutions and in the field. Bringing together individuals from different countries and disciplines, ZACC conferences help to build a stronger and more effective global network for wildlife and habitat conservation, and to establish direct links to zoos, aquariums, and their constituencies. For info contact: <http://www.houstonzoo.org/zacc> or [conservation@houstonzoo.org](mailto:conservation@houstonzoo.org)

**Neotropical Primate Husbandry, Research, and Conservation Conference** - October 13-15, 2009 in Chicago, IL. Hosted by the Brookfield Zoo. This conference will focus on a variety of topics pertaining to neotropical primates and will bring together staff from zoological parks, sanctuaries, and universities, as well as field researchers and range country biologists to share the most current information on husbandry, conservation, and emergent issues pertaining to captive and wild populations of neotropical primates. The workshop will include three days of presentations, a poster session, as well as an icebreaker, silent auction, and banquet. Additional information regarding registration fees, travel information, and submission of abstracts will be made available in late 2008. Please contact [vince.sodaro@czs.org](mailto:vince.sodaro@czs.org) for additional information.

**Post Your Coming Events Here**  
email to: [akfeditor@zk.scoxml.com](mailto:akfeditor@zk.scoxml.com)





## DIETS AS DIVERSE AS THE ANIMAL KINGDOM

Working in partnership with zoos and aquariums, MAZURI® PhD nutritionists develop industry leading products specifically for each species. From aardvarks to zebras, we work hard to give your animals the most of what they need.

For more information on MAZURI® products—including nutritional analyses and research findings—visit [www.mazuri.com](http://www.mazuri.com)

or call 1-800-227-8941 for the location of your nearest dealer. Because when it comes to great nutrition, we're committed to the health and longevity of every animal.

**Mazuri®**  
The Exotic Animal Feeding Resource

[www.mazuri.com](http://www.mazuri.com)



AAZK National Conference  
**2008**  
Salt Lake City

## **LAST Call For Papers & Posters!**

**Deadline for abstracts:** 1 May 2008

**Deadline for papers:** 15 July 2008

Our guiding theme for the 2008 conference, "Elevating Animal Care", will focus on concepts that highlight **professionalism, creativity and initiative** in the realm of conservation, education and animal husbandry. Animal care professionals from all related fields

are encouraged to submit high quality, original topics for consideration. Abstracts will be accepted for three presentation types:

### ◆ **Papers**

Standard papers typically represent a summary of innovative techniques, achievements or approaches to animal care, welfare, conservation, education or research. Authors will be expected to give a 15-minute presentation on the relevance and practical application of their topic.

### ◆ **Posters**

Accepted posters will be displayed during the conference, therefore the topic should be suitable for visual presentation. Authors will discuss their work with conference delegates during the designated poster presentation session.

### ◆ **Workshops**

Workshops allow practical presentation and discussion of concepts relevant to animal care professionals. Workshop organizers should outline a list of group leaders, a summary of the theme and significance, format of discussion, expected number of participants and length of workshop.

Abstracts should be no longer than 300 words and should include in detail the significance of the topic being presented along with results, conclusions and benefits of the work described. Poorly written abstracts, those that do not contain proper information or do not otherwise meet submission criteria will not be considered.

All abstracts should include the following information:

- Full name of presenter & co-authors
- Institution/Affiliation
- Position or title
- Title (specify paper, poster or workshop)
- Short bio of yourself for introduction
- A/V needs
- Contact information, including email address

Submit abstract by **1 May 2008** in Microsoft Word via email to [utahaazk@hoglezoo.org](mailto:utahaazk@hoglezoo.org). Authors will receive an email confirmation upon receipt of their abstract. Authors will then be notified regarding acceptance by 1 June 2008. All final and complete papers must be received by 15 July 2008 in order to be included in the program.

For more information, please visit our website [www.utahaazk.org](http://www.utahaazk.org)

You can also contact us at: Utah Chapter AAZK 2600 Sunnyside Avenue Salt Lake City, UT.  
84108 (801) 584-1784 Email: [utahaazk@hoglezoo.org](mailto:utahaazk@hoglezoo.org)

# AAZK Announces

## New Members

Stephanie Hample, **The Wild Center (NY)**; Katie Freislich, **Rosamond Gifford Zoo (NY)**; Allie Hagerman and Katie Volz, **National Zoological Park (DC)**; Caleb J. Oliver, **Salisbury Zoo (MD)**; Lisa Marshall and Kimberly Guana, **Busch Gardens (FL)**; Lauren Revans, **Nashville Zoo (TN)**; Bessie Meister, LaDonna Gordon, Lindsay Maess, Laura Butler, Kelly Garner, and Sara Baer, **Detroit Zoo (MI)**; Matt Igelski and Victoria Mikans, **John Ball Zoo (MI)**; Kelli Theron, **Bramble Park Zoo (SD)**; Jarred Burleson, Samantha Birelson, Zac Bell, Kevin Bell and Roxy Bell, **The Roo Ranch (SD)**; Jackson C. Thompson, **Dickerson Park Zoo (MO)**; Melissa Hayes, **Omaha's Henry Doorly Zoo (NE)**; Laura Grenda, **Audubon Nature Institute Zoo (LA)**; Kelly Bass, **Oklahoma City Zoo (OK)**; Andrea Perleberg, **Moody Gardens (TX)**; Linda Chacon, **El Paso Zoo (TX)**; Teri Smith-Atkin, **Utah's Hogle Zoo (UT)**; Stephanie Sanchez and Kelly Reilly, **Wildlife World Zoo (AZ)**; Matthew Holdgate, **Navajo National Zoological & Botanical Park (AZ)**; Jennifer Borders, **Oakland Zoo (CA)**; Brooke Weinstein, **The Steinhart Aquarium (CA)**; Shawn Finnell, **Wildlife Safari (OR)**; Jennifer Phelps, **High Desert Museum (OR)**; and Lisa Land, **Cougar Mountain Zoo (WA)**. Beginning with the March 2008 issue of *AKF*, we will no longer list the names of those Professional Members who do not list their facility on their application.

### Renewing Contributing Members

Bonnie Jacobs, Lead Keeper  
Lincoln Park Zoo, Chicago, IL

### New Institutional Members

Kentucky Reptile Zoo, Slade, KY  
Jim Harrison, Director

Little Rock Zoo, Little Rock, AR  
Michael E. Blakley, Director

### Renewing Institutional Members

Six Flags Great Adventure, Jackson, NJ

The Toledo Zoo, Toledo, OH  
Anne Baker, Ph.B., Director

The Perkins Wildlife Center, Cleveland, OH  
Harvey B. Webster, Director, Wildlife Resources

Exotic Feline Rescue Center, Center Point, IN  
Joe Taft, Founder/Director

Detroit Zoological Society, Royal Oak, MI  
Ron Kagan, Director

Henry Vilas Zoo, Madison, WI  
Jim Hubing, Director

Brookfield Zoo, Brookfield, IL  
Dr. Stuart D. Stahl, Ph.D., President & CEO

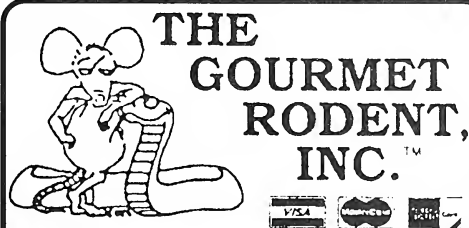
St. Louis Zoo, St. Louis, MO  
Jeffrey P. Bonner, President

Kansas City Zoo, Kansas City, MO  
Randy Wisthoff, Director

Topeka Zoological Park, Topeka, KS  
Michael Coker, Director

Wildlife World Zoo, Litchfield, AZ  
Mickey Ollson, Director

Calgary Zoo Library  
Calgary Zoo, Botanical Garden & Prehistoric Park  
Calgary, Alberta, Canada  
Alex Graham, President & CEO



## RATS AND MICE

Bill & Marcia Brant

12921 SW 1st Rd., Ste 107,  
PBM #434  
Jonesville, FL 32669

(352) 472-9189

Fax: (352) 472-9192

e-mail: GrmtRodent@aol.com

# From the President

## Sweet Corn for Sally A Zookeeper's Perspective on Safety

*It was an unusually busy day in the bear area when Sally's keeper switched her over into the adjacent cage to clean her den. A health check was scheduled for one of the other animals in the area, so a large entourage of keepers, vets, curators, techs, and interns had been passing through the building. Sally's keeper, intending to assist with the procedure, was working quickly to finish cleaning the bear line. Sally, a spectacled bear, well known among the keeper staff as an animal that would just as easily grab at you through the bars of her cage door as she would gently take a treat through the same barrier, was a bi-polar bruin if ever there was one. Unknown to the keeper was the fact that Sally's mood was about to be tested when keeper met bear in the tight confines of the den.*

Zookeepers work in environments where routines and procedures are designed to reduce risk, but when mistakes occur, there can be severe consequences. Simple actions, inactions, or merely the "vicissitudes of the brain" can turn a normal day into crisis. Our profession therefore, turns most keepers into perfectionists. When mistakes do occur, they are usually written off by scrutinizing co-workers as being associated with inexperience, stupidity, or negligence. While keepers may respond with empathy or sympathy to a co-worker's mistake, most keepers rarely consider the fact that they themselves could make a similar error. Zookeepers utilize a curious rouse of knowledge, superstition, illusion, confidence, and a dash of twisted humor to temper the stress and realities of working with dangerous animals. But as one venerable keeper once told me, if you work in this business long enough, you're bound to make a mistake. But why do keepers make mistakes? Most importantly, how can we prevent them?

Laurence Gonzales, contributing editor for *National Geographic Adventure* magazine, researched the anatomy of a mistake for his best selling novel, *Deep Survival*. Gonzales scientifically describes such things as working memory and mental models to explain why accidents happen. Comparing Gonzales' research with my personal observations from 17 years in the animal care profession, I have come to the non-scientific conclusion that zookeeper mistakes fall into one of three main categories.

### Zen Master - "Pouring water into a full glass only results in spilt water"

#### ***Working Memory***

Zookeepers are champion multi-taskers. Modern day keepers are asked to perform a multitude of daily activities, including cleaning, observations, enrichment, training, more cleaning, exhibit maintenance, data collection, research, conservation, more cleaning, education, meetings, vet procedures, more cleaning, studbooks, media interviews, pest control, maintaining life support systems, more cleaning, etc. I'm always amazed at how many animals, exhibits, and holding areas some of you are responsible for on a daily basis. All of these responsibilities are tied together by a knot of safety that we hope never unravels.

Working memory, also known as attention span or conscious thought, is described by Gonzales as the general purpose workspace of the brain that takes information from our specialized system of senses and processes the information into function. The catch is, working memory can only hold a few things at once, so when something new commands immediate attention, the other things are lost. The limited nature of working memory, he explains, can cause serious lapses in the way we process information and make decisions. It's the reason why people talking on cell phones are more likely to wreck their car.

Gonzales tells the story of world class rock climber, Lynn Hill, winner of 30 international rock climbing titles. On a spring day in Buoux, France, Hill prepared for a relatively easy climb by threading her rope through her climbing harness. However, instead of tying the appropriate knot, she stopped to put on and tie her shoes. During the act of shoe tying, she stopped to talk to a fellow climber, and then headed to the rock face to begin her climb. She climbed the wall, and when she

leaned back to rappel to the ground, she fell 72 feet, but miraculously survived. Hill later recalled "The thought occurred to me that there was something I needed to do before climbing..."

*Similarly, Sally's keeper later confessed, "Something just didn't feel right when I entered the bear den..."*

Distractions and working in a hurried fashion are major causes of mistakes. When a zookeeper's glass of working memory is filled to the max, it doesn't take much to create a spill. Quite often, keepers will preface their stories of a mistake by stating "I was in a hurry". Multi-tasking, excessive workloads, phone calls, radio traffic, co-workers, zoo visitors, family issues, and the endless clues from the latest episode of *Lost* can all fill our working memory with distractions. If the distraction occurs during the act of locking a lock, shifting an animal, or entering an exhibit, a keeper's worst fear can become reality.

It may sound crazy that such simple, everyday occurrences can cause major lapses in judgment. However, research has shown just how focused, yet limited working memory can be. Gonzales describes a Harvard psychological experiment in which people were shown a video of basketball players passing a ball back and forth. The research participants were asked to count how many passes were made by the players in either the white or black uniforms. During the middle of the video, a woman with an umbrella or a person in a gorilla costume unexpectedly walks through the middle of the action, remaining visible for at least five seconds. Afterwards, the subjects of the experiment were asked if they noticed anything odd. Thirty-five percent of the subjects failed to notice the woman with the umbrella, while 56 % failed to notice the person in the gorilla costume. They were so focused on counting the passes, they failed to observe the unexpected. Now consider how focused you are during your workday. We may not be counting passes in a basketball game, but if our working memory is too focused, or distracted, we may fail to notice the unexpected as well.

### The Continuity Conundrum

#### ***Mental Models and Routines***

I have spent the majority of my animal care career working in some form or fashion as a relief keeper and have worked with over 600 species. However, the trend in zoological parks is specialization for animal care professionals. The role of general relief keepers in zoos is diminishing. The reasoning is specialization leads to increased continuity and better familiarity with the animals and their exhibits. However, does specialization and familiarity lead to better safety? My personal observation leads me to conclude that the frequency of mistakes is roughly equal between regular keepers and relief keepers. Actually, my observation is that certain individuals are more prone to accidents than others, independent of their status as a regular or relief keeper. However, Gonzales' research suggests that continuity may actually be a cause of many mistakes.

Zookeepers adhere to very strict routines during their workday. My guess is that many of you clean your cages, lock your locks, feed your animals, and put animals on exhibit in the exact same order every day. Our routines are meant to keep us from forgetting something, and ultimately keep us safe. Once established, our routines require little thought. They are also efficient, which make them of the greatest importance to a multi-tasking keeper. However, these routines can lead to mistakes when continuity, efficiency, and diminished thought lead us to overlook or ignore obvious signs that something is amiss.

Unfortunately, routines are a double-edged sword. While it is possible that following a well-established routine can actually lead to mistakes, the breaking of a keeper's routine is just as dangerous. One of my worst mistakes as a keeper involved the breaking of my routine. One summer day, a severe hail storm quickly rolled over my zoo with little warning. Expeditiously, I dashed through my area, bringing in the animals that lacked the shelter to get out of the storm. The process of working hurriedly, and securing my animals in a different order and fashion, eventually resulted in error.

According to Gonzales, mental models are your brain's version of a routine, using efficiency to process information. Imagine if your brain had to fully re-process every piece of information, every time it came across it. Instead, we don't really perceive our surroundings most of the time. We take in perceptions through our senses and the brain pulls up the most relevant mental model. It

is why we automatically stop our car at a red light without really thinking about it. The process allows us to move through life without having to re-examine something we have already examined. But this efficiency comes at the cost of careful analysis. Worse yet, research indicates that we are likely to process only information that supports our mental models, and ignore information that contradicts it. Gonzales tells the story of a man lost in the wilderness, who stopped to smash his compass on a rock, simply because he assumed it was broken. He trusted his mental model to tell him the correct direction, rather than the compass.

Think back to the example of mountain climber Lynn Hill. She had created a very efficient mental model for tying her rope to her harness and could do it without thinking. Therefore, the act of tying her shoes, combined with the distraction of another climber, was similar enough to tying her rope that it allowed her to reach the conclusion that the rope was tied, even when a voice inside her head was telling her otherwise.

Now think about how often you actually stop to carefully examine that you have locked that lock, closed that door, or shifted that animal. Also consider what happens if your mental model of securing an animal focuses too closely on the lock, the animal, and the door. You may be likely to miss something that falls outside your mental model, such as the door hinge, the rusted expanded metal, the overhanging tree branch, or the broken hot wire. The act of doing the same tasks, day after day, in the same routine creates a strong and efficient mental model. It is why regular keepers generally accomplish the same tasks as a relief keeper in a shorter amount of time. It is also why a relief keeper may be more apt to give careful consideration to the task at hand, double or triple check that lock, and avoid the pitfalls of mental models. My point is not meant to imply that relief keepers are less accident prone, but rather to encourage all keepers to be aware of the traps associated with routines, continuity, and mental models.

### My Worst Zoo-Related Injury Came from a Goose!

#### *Risk Homeostasis*

Most of what I have discussed so far probably makes you think of a keeper's worst fears, such as animal escapes, serious injuries, even fatalities. But as we all know, safety relates to a variety of things such as zoonotic disease, bites, back injuries, chemical exposure, falls, cuts, etc. The problem with safety is that we all go about our working days adhering to our own acceptable level of risk. This is known as *Risk Homeostasis*.

According to Gonzales, people accept a given level of risk. While the level of acceptable risk varies for each person, the level of risk they are willing to take remains constant, independent of the situations they are in. In other words, if you perceive your situation as "less risky", you are likely to take more risk. The perception that your conditions are "more risky" means you will likely take less risk. Gonzales uses the example of anti-lock breaks to demonstrate this theory. When automakers introduced anti-lock breaks, they expected accident rates to go down, but in reality they *increased*. People perceived that driving with anti-lock breaks was safer, so they drove more aggressively, resulting in more accidents.

There is evidence of this theory manifesting in the zoo profession as well. For example, an elephant keeper familiar with free contact suddenly is put into a system of protected contact. Working in a seemingly safer environment, the keeper lets their guard down, and an accident occurs. A venomous snake handler working with a non-venomous species takes added risk and gets bit. Animal care professionals assign the levels of risk to the species they are working with. However, many accidents occur when we work with the species that are less likely to be associated with risk.

Early in my career I worked with a number of species associated with "high risk". Large cats, bears, venomous snakes, and hoofed animals with sharp and pointy horns. As you might predict, my worst zoo-related injury didn't come from one of these "dangerous" species. The culprit was a *Plectropterus gambensis*, who eagerly plunged his spur deep into my knee. I had walked out into one of our African yards to clean a pool wearing thick waders but carrying no protection. Why would I? The only thing in the yard was a *bird*. I took greater risk and paid the price when the spur winged goose gleefully greeted me with an assault of winged fury. Bleeding, I limped back to the barn, another victim of risk homeostasis.

## *Sweet Corn for Sally*

*Sally's keeper did a fine job of stall cleaning on that fateful day in the bear den. The stall was stripped, disinfected, rinsed, and dried by squeegee. A fresh mound of straw was piled in Sally's favorite corner, where she would fashion herself a comfortable nest for the evening. The keeper left the den once, during the process of cleaning, to check on the status of the health check that was about to proceed in the adjacent room. At some point, around the time the keeper returned to the stall with a scoop of Sally's chow, it became evident that the transfer door separating Sally and her keeper was wide open.*

The keeper isn't sure exactly how long the door was open. The door possibly could have been open the entire time, or if left unpinned, opened by the bear at some point in the cleaning process. What is also unclear is why the bear didn't do anything. The keeper said Sally was just sitting at the door way, watching what was going on. Perhaps the bear was so accustomed to watching keepers walk in and out of dens that suddenly having an open transfer door didn't seem too unusual. Maybe Sally deduced that by not attacking she would be rewarded in some way. Perhaps Sally perceived the opportunity to attack as a mind trick... "This keeper actually wants me to come through this door, and when I do, bad things will happen. No way, you're not going to fool this bear!" Quite possibly, Sally was preparing to attack at precisely the same moment that the keeper noticed the error. We will never know for sure. The keeper, with cat-like quickness, jumped out of the stall, closed the door, and locked the lock in a nanosecond. Narrowly escaping a catastrophic event, the keeper took a short moment to regain composure, and then walked into the next room to assist the unassuming co-workers with the health check.

Several things transpired in leading up to this potential catastrophe. The keeper was in a hurry. There was the distraction of co-workers coming in and out of the adjacent room, and the approaching health check. The keeper, in an attempt to finish the cleaning duties more quickly, broke from the usual routine and cleaned the dens in a different order. Also, during the process of cleaning, the keeper paused to leave the room, checked on the status of the health check, then returned to resume the project. None of these things justify the error, but illustrate a sequence of events that can lead to a catastrophic mistake. To this day, the keeper and those who know the story, reward Sally with an offering of gratitude. A slice of cantaloupe for narrowly escaped catastrophe, a wedge of honeydew for consequences not rendered, and sweet corn for Sally.

## **A Response to Hansen**

Ed Hansen, Executive Director of AAZK, Inc., and risk manager by profession, wrote an extremely relevant and insightful essay in the May, 2007 issue of the *Animal Keepers' Forum* entitled *Safety in the Animal Care Profession*. Hansen prefaces by stating an average of ten exotic animal caretakers suffer a fatal injury each year. While many of these fatalities do not occur in accredited institutions, we can all agree that just one fatality is one too many, no matter where it occurs. Hansen lays out a plan for improving safety in the industry, focusing on three main players, employees, facilities, and the oversight. I completely support and endorse Hansen's plan. The AAZK Board of Directors has discussed the issue of safety at length. We recognize there is a huge safety void in our industry that needs to be filled and your Association is actively working towards helping fill that void.

However, I have two minor points of contention with Hansen's essay. First, Hansen states "...it is completely possible to identify 99.97% of the hazards, when analyzing a work process or hard facility..." While I would expect such a comment from a risk manager, experience and observation leads me to believe the unplanned and unexpected occurs on a fairly regular basis. Despite how well we plan for safety, analyze every situation and aspect of animal care, and implement safety into our accreditation process, accidents and errors will occur.

Gonzales, using the thesis of *complexity* and *chaos theory*, explains that despite safety training, accidents, though rare, may be both inevitable and normal. In fact, efforts intended to make accidents less likely to occur, especially by technological means, make situations more complex and therefore more prone to accidents. The idea behind chaos theory is that we become victims of our own success. Most of the time nothing bad happens, so we start to assume that orderly circumstances are a product of our safety systems. Then at critical points in conditions, judgments, acts, or events, the unexpected occurs with potentially disastrous results. The idea is that change, catastrophe, and enormous consequences are often the products of trivial events. Large accidents, while rare, are



normal, and efforts to prevent them eventually tend to fail. Gonzales uses the example of space shuttle disasters. Seventeen years elapsed between the *Columbia* and *Challenger* disasters, yet such accidents are inherent characteristics of space travel. We may investigate and explain every detail of how an accident occurs, but knowing every detail will not prevent the next disaster. In fact, the safety features invented in each generation creates more complexity, making disasters more likely.

To put this all in terms that zookeepers understand and universally embrace, shit happens. It has always happened, and will always happen. Zookeepers know it's their job to clean up the mess. Every day, something happens that has never happened before. What may not be understood, by keepers and zoo managers alike, is that whether or not accidents and errors occur does not necessarily determine who is a good keeper and who is not. Rather, it is how we react when the inevitable occurs that defines and distinguishes us as zookeepers.

My second point of contention with Hansen involves his statement "...conveyance of discipline for a safety-related incident is not a punitive action. It is the enforcement of safe practice that may someday save your life..." I do not disagree that discipline is a necessary component of safe practice. However, we must also understand that depending on the level of progression and consistency in the discipline process, the discipline meant to promote safety may actually increase stress factors that could increase the potential for errors. As a final thought on discipline, I have observed that accountability can be inversely proportional to one's level in an organization's hierarchy. Simply stated, keepers are often more likely to be held accountable for errors than managers. These hierarchal inconsistencies can potentially devastate a staff's morale. It is important that safety becomes the primary focus at every level of the hierarchy, and that all employees of an institution operate on a level playing field in regards to accidents and errors.

## Conclusion

So what is a zoo professional to do? Shall we bow our heads to the theories of *complexity* and *chaos theory*? Are accidents and errors an inevitable occurrence that we can do nothing about? In an effort to promote safe practice, here are my Top 10 ideas for improving safety in the animal care profession.

1. Keepers need to be aware of the pitfalls, presented in this essay, that are related to working memory, mental models, and risk homeostasis. Knowing some of the factors that can lead to mistakes can help us prevent them.
2. Keepers, facilities, AZA, and the AAZK all need to work proactively in regards to safety, rather than merely reacting. We may put effort into animal escape drills, but let's put just as much energy into teaching our staffs how to prevent the animal from escaping in the first place. Venomous animal bite drills are important, but let's give our staffs the skills and training they need to reduce the likelihood of bites. Additional training costs time and money, but the benefits of preventing a crisis before it ever happens are priceless.
3. Each facility needs to have a written safety program that serves as a living document that is constantly edited and updated. It cannot collect dust on a shelf, utilized only when catastrophe has already occurred. Employees need to be required to know the details of this document and review any changes or additions to the document.
4. Keepers and managers must work together in performing a complete job hazard assessment of their facilities and practices.
5. Once safety issues are identified, facilities must respond quickly to eliminating or improving the safety issue. I have heard of keepers purposely leaving safety issues visible during USDA inspections because they know a written violation is the only thing that will result in a repair. I have also heard of keepers who have stopped writing work orders for safety-related maintenance, because they have lost faith in their facility's commitment to respond to these issues. A rapid and complete response to safety-related issues is vital to our institutions.
6. Zoological institutions must create a culture that promotes communication about safety issues. Employees should not feel reluctant to express safety concerns or fear repercussions. Safety should be a primary focus at every level, in every department of a zoo facility.



7. Institutions should have an initial and annual safety training process. Keepers need to realize its importance, embrace it, and work to improve it.

8. AZA must provide important oversight of safety in accredited institutions. Safety must become a primary focus in the accreditation process. Safety tracking and risk management should be a focus within institutions, but should also be a focus of the AZA's oversight.

9. AAZK will work with AZA and other organizations to promote safety and fill any safety void in our profession. Keeper safety guidelines should be developed by these oversights and adopted at the institutional level.

10. Institutions need to look at the workloads they are placing upon their animal care staff. In some cases, keepers are being asked to do so much, it jeopardizes the quality and safety related to their work.

Finally, I want to know what you think about zoo related safety. Contact me at [shane.good@aazk.org](mailto:shane.good@aazk.org) to send me your thoughts.



Shane Good, President, AAZK, Inc.

#### References

Gonzales, Laurence (2003). *Deep Survival. Who lives, who dies, and why.* W.W. Norton & Company, New York.

Hansen, Ed (2007). *Safety in the Animal Care Profession.*  
*Animal Keepers' Forum*, Vol. 34, No. 5, 166-168.

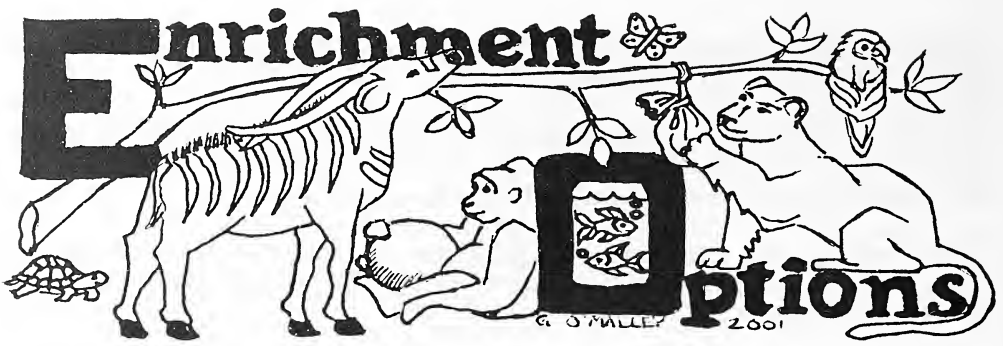


### ***Are You Moving?***

**Make sure to notify AAZK of your change of address. Don't miss a single *AKF* issue!**

**Call: 785-273-9149 or you can email change of address information to:**

**[aazkoffice@zk.kscoxmail.com](mailto:aazkoffice@zk.kscoxmail.com)< Please put "Address Change" in the subject line. You may also send in a change of address from the AAZK website ([www.aazk.org](http://www.aazk.org))**



EO Editor - Rachel Daneault, Disney's Animal Kingdom

## Walking it Off: Using Exercise to Reduce Aggression in an Female Asian Elephant

By Scott Morford, Senior Elephant Keeper  
San Diego Zoo, San Diego, CA

Changing an elephant's perspective and ultimately her behavior towards her keepers is no small task, but with a patient and consistent approach anything is possible. Sumithi is a 40-year-old female Asian elephant (*Elephas maximus*) that has lived at the San Diego Zoo since she was approximately two years old. There have been several significant transitions in Sumithi's life that have influenced and altered her behavior towards her keepers and elephant companions.

The San Diego Zoo managed its elephants in a free contact system for the first 30 years of Sumithi's life. During this time period Sumithi worked very well for her keepers and was consistently compliant with the standard husbandry behaviors required for routine care. More often than not she would seek out attention from her keepers and frequent locations in the exhibit where the keepers regularly entered. Sumithi has grown up around other females and has spent the last 25 years with Devi, a 30-year-old Asian female, and Tembo, a 36-year-old female African (*Loxodonta africana*). Her relationship with the other two elephants was generally good but Tembo, who occupied the "matriarch" position at this time, occasionally was aggressive towards her. Often times the keepers would intervene to prevent the other two elephants from stealing Sumithi's hay. Sumithi was on the bottom end of the social hierarchy for this herd.

In June of 1998 the San Diego Zoo switched to a protected contact management system for its elephants. Although the transition occurred gradually over a six-month period, there was a noticeable impact on Sumithi's behavior towards her keepers and ultimately towards the other two elephants. Tembo's dominance over Sumithi escalated into more frequent aggressive actions. There were increased instances of Tembo tussling Sumithi and of Tembo and Devi taking her hay. Also at this transition period, Sumithi's behavior towards her keepers shifted from being calm and compliant to routinely aggressive and non-cooperative. In the first five months of protected contact there were 18 documented situations of Sumithi swatting or kicking at her keepers during husbandry routines. Often times she was non-responsive and refused to participate during baths and regular training sessions. The other two elephants did not seem to be as impacted by this change in management systems. While they had to adapt to a new way of performing already familiar tasks (baths, footwork, etc.), Tembo and Devi's behavior towards their keepers remained cooperative and non-aggressive.

In the first three years of protected contact there were 70 documented instances of aggression by Sumithi towards her keepers. In contrast there were zero for Devi and only four for Tembo. In addition to Sumithi's frequent aggressive responses towards her keepers, her cooperation in basic husbandry tasks became unpredictable as she routinely refused to participate. The question quickly arose as to why Sumithi's behavior had changed so dramatically. While it is difficult to know for certain what her thought processes were, there are a couple of possibilities that could account for this behavioral shift. Increased levels of frustration could have stimulated the increased aggression, as Sumithi had to learn a whole new system of interacting with her keepers. A second possible cause is "game playing" as Sumithi quickly came to the realization that she had complete choice in the matter of whether or not to cooperate with her keepers. A third factor centers on the possibility of displaced aggression. As Tembo, and in some instances Devi, were aggressive towards Sumithi,

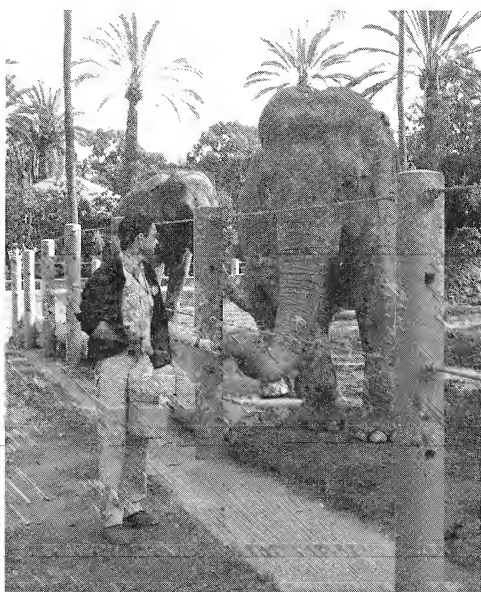


The author walks with Sumithi around the cable perimeter of her exhibit at the San Diego Zoo. (Photo by Victoria Zahn)

often taking her hay, she retaliated by becoming aggressive with her keepers. However, two years into protected contact Sumithi ultimately did displace Tembo as the matriarch yet her behavior towards her keepers did not change. Whatever the reason or reasons may be, there was no question that Sumithi had become a potentially dangerous elephant to work around and the keepers had to become more cautious during their exposure to her.

In May 2005 the keeper staff implemented a structured exercise program for Sumithi. The primary goal was to encourage weight loss, however

its impact was also strongly seen in Sumithi's overall behavior towards her keepers. The premise of the program was to train Sumithi to follow a single keeper around the cable perimeter of the exhibit for up to an hour every morning. The other two elephants were separated out of the area so they would not be distracting to Sumithi. We started off in very small increments of time (10 minutes at first) hoping to set Sumithi up to succeed. As Sumithi walked, the keeper reinforced her with one of three grades of treats depending on her level of cooperation. For Sumithi, raisins are the most exciting form of reinforcement followed by elephant pellets and then diced root vegetables. Initially, Sumithi was not entirely cooperative on her walk even though she was only expected to move for five to ten minutes during the training sessions. However, the keepers were consistent in their expectations and over the next six months Sumithi was gradually brought up to walking consistently every day



Raisins, elephant pellets and diced root vegetables are used as reinforcement for Sumithi during her daily hour-long walks (Photo by Victoria Zahn)

for 60 minutes at a time in a protected contact format. It was interesting to observe that her initial response of avoidance towards walking transformed into one of expectation as she now waits for the keeper by the gate where the walk normally begins.

We have maintained this hour-long walking behavior on a daily basis for over two years, and Sumithi has changed in many ways. She has lost over 700 pounds and has developed noticeable muscle tone in her front and rear legs. Behaviorally, the number of aggressive incidents with keepers has dropped 80% in comparison to before she started exercising. This statistic is notable because the keepers' exposure time to Sumithi has more than doubled with the hour walk yet she has not responded aggressively even though she has more opportunities to do so.

In addition, her cooperation with regular husbandry tasks such as bathing, footwork and shifting has increased dramatically to the point that it is now abnormal for her not to participate. Lastly, Sumithi is more eager to learn new behaviors and is not as quick to become frustrated during the learning process.

The reasons behind Sumithi's behavioral transformation as a result of walking are difficult to know for certain. We do know that elephants are designed to move on a daily basis in order to acquire food and water in the wild. In a captive setting this "exercise" is generally reduced because there is little motivation on the elephant's part since food and water are provided. In my experience, a lot happens when you regularly walk an elephant. There is the physical impact that provides an outlet to expend energy in a productive manner. This encourages weight loss and increases muscle tone as the elephant uses its body for what it is designed to do. There is also the psychological impact of regular structured walking. In Sumithi's case, the individual keeper attention combined with a set of structured goals set by the keeper gave Sumithi something to focus her attention on in a positive manner. Through walking, Sumithi is performing a behavior her mind and body are designed to do while at the same time enabling the keeper to positively reinforce this calm focused state of mind. In this instance, something as simple yet complex as regular structured walking contributed to the transformation of an elephant's behavior towards her keepers.

*(Ideas appearing in this column have not necessarily been tested by the editors for safety considerations. Always think ahead and use good judgement when trying new ideas. You are invited to submit material for the Enrichment Options Column. Look in the January 2004 issue of AKF for guidelines for articles acceptable for this column's format or contact the editor at [akfeditor@zk.kscoxmail.com](mailto:akfeditor@zk.kscoxmail.com) for a copy of the guidelines. Drawings and photos of enrichment are encouraged. Send to: AKF/Enrichment, 3601 SW 29th St., Suite 133, Topeka, KS 66614-2054, USA. Eds.)*

### **Lee Houts Enrichment Excellence Award- Let Someone Shine!**

Have you been impressed with an initiative that an individual or group has developed to better enrich their animals? Has an individual or group **you** know, developed an activity for a species in their care that has brought forth breathtaking natural behavior? Do you know an individual or group that has spearheaded a dynamic program helping their department move forward with sustainable, accountable, zoo-wide enrichment? Has this individual or group inspired you through their dedication to enrichment for captive wildlife? If so, you can let them and their colleagues know just how much their hard work is appreciated through the Lee Houts Enrichment Excellence Award. Official forms for nomination will be in a coming issue of the AKF, but start thinking now of that special person or group who you think may be an Enrichment Hero! Award recipients and their work will be highlighted in an issue of the AKF. **Nominations are due by May 1, 2008.**

## ANIMAL KEEPERS' FORUM

*Special Dedicated Issue on Crisis Management in Zoos*

**NOW  
AVAILABLE**

## Crisis Management in Zoos

November/December 2007

*The Journal of the American  
Association of Zoo Keepers, Inc.*

Special 136-page issue of *Animal Keepers' Forum* dedicated to Crisis Management in Zoos. This special issue contains papers designed to help animal-care facilities supplement their own crisis management protocols and provide information on how various plans have worked at other facilities.

## Table of Contents

*Acknowledgements* - Susan D. Chan, Managing Editor, *Animal Keepers' Forum* • *Preface* - Ed Hansen, Executive Director, AAZK, Inc. • *Forward* Kris Vehrs, Executive Director, Association of Zoos & Aquariums • *Introduction* - W.K. Baker, Jr., Director, Abilene Zoological Gardens, Abilene, TX • *Crisis Management Planning in Zoological Institutions* - Geoff Underwood, Stirling, South Australia • *Disease Risk Communication and Highly Pathogenic Avian Influenza* - Robyn Barbiers, D.V.M., Lincoln Park Zoo, Chicago, IL • *Developing a Weapons Team for Dangerous Animal Emergencies: Organization and Training* - Norm Piwonka, Departmental Technical Analyst and Ken Kaemmerer, Curator of Mammals, Dallas Zoo, Dallas, TX • *Who's Afraid of the Big Bad Wolf? Dealing with a long-term, high-profile animal escape* - Jennifer Barnett, Director of Wildlife Management, Binder Park Zoo, Battle Creek, MI • *Chemical Restraint of Exotic Animals in an Emergency Situation* - Marilyn M. Baeyens, DVM, Veterinarian, Little Rock Zoo, Little Rock, AR • *The Veterinary Role as First Responders to a Medical Emergency in a Crisis Management Situation* - W.K. Baker, Jr., Director, Abilene Zoological Gardens, Abilene, TX • *Critical Incident Stress Management: A Proven Tool for Addressing Staff Needs After a Traumatic Event* - Lisa Fitzgerald and Gary Sanchez, Dallas Zoo, Dallas, TX and Jay Pratte, Zoo Atlanta, Atlanta, GA • *Developing a Program for Dangerous Animal Emergencies: Procedures for Animal Escape, Unauthorized Person in with Dangerous Animals, and Unified Command System* - Ken Kaemmerer, Curator of Mammals, and Norm Piwonka, Departmental Technical Analyst, Dallas Zoo, Dallas, TX • *Dive Safety in Zoos and Aquariums* - Gil Falcone, Senior Dive Safety Officer, Monterey Bay Aquarium, Monterey, CA • *Wildfire! One Facility's Response and Lessons Learned* - Chuck Brinkman IV, Professor, Moorpark College, the Staff of America's Teaching Zoo and the Students from the Classes of 2004 and 2005 • *Keep Communication Equipment Powered in an Emergency, Part 1 What to Put in Your Emergency Power Kit* - Thomas Shaddack, TechSoup.com • *Keep Communication Equipment Powered in an Emergency, Part 2 How to Convert Your Devices to Run Off Batteries* - Thomas Shaddack, TechSoup.com • *The Terrorist Threat to Zoological Institutions* - W.K. Baker, Jr., Director, Abilene Zoological Gardens, Abilene, TX and Commander W.S. Graves, U.S. Navy, Retired • *Hurricane Preparedness: Lessons Learned from Hurricane Katrina* - Elizabeth E. Hammond, DVM, Lion Country Safari, Loxahatchee, FL and Daniel K. Maloney, General Curator/Life Sciences, Zoos Victoria, Parkville, VIC, Australia • *Training Dangerous Animals Safely is No Accident* - Gary M. Priest, Curator-Applied Animal Behavior, San Diego Zoo/San Diego Wild Animal Park/Zoological Society of San Diego, San Diego, CA • *Firearms Use and Training in AZA Institutions* - Dan Beetem, Director of Animal Management, The Wilds, Cumberland, OH • *Aspects of a Safety Program for Zoos and Aquarium Facilities in the United States* - Ed Hansen, Risk Management Coordinator, City of Tucson, Tucson, AZ

# Crisis Management in Zoos Order Form

(Please type or print clearly)

I wish to order \_\_\_\_\_ copy (ies) of the Crisis Management in Zoos dedicated issue of *Animal Keepers' Forum*.

AAZK Member \$25.00 Non-Member \$50.00

\_\_\_\_\_ #copies x price \$ \_\_\_\_\_

Price includes Domestic media rate postage and Canadian airmail postage.

Total for Order \$ \_\_\_\_\_

Name \_\_\_\_\_

Address \_\_\_\_\_ Apt. # \_\_\_\_\_

City \_\_\_\_\_ State/Province \_\_\_\_\_

Zip/Postal Code \_\_\_\_\_ Country \_\_\_\_\_

Payment Options: check enclosed \_\_\_\_\_ Mastercard \_\_\_\_\_ VISA \_\_\_\_\_

(checks payable to AAZK, Inc. U.S. Funds ONLY)

Credit Card # \_\_\_\_\_ - \_\_\_\_\_ - \_\_\_\_\_ - \_\_\_\_\_

Exp. Date \_\_\_\_\_

Name on Credit Card \_\_\_\_\_

(please print clearly)

Signature \_\_\_\_\_

Phone # \_\_\_\_\_

Email \_\_\_\_\_

Mail completed Order Form and payment or authorization to: AAZK, Inc., 3601 SW 29th St., Suite 133, Topeka, Kansas 66614-2054 USA ATTN: CMZ Order. **North American phone orders** using a Mastercard or VISA credit card may be placed by calling 785-273-9149/



The Utah Chapter AAZK is proud to host the 35th Annual AAZK National Conference in **Salt Lake City September 24-28.**

Here's an exciting preview of what you'll experience in Utah...

### Hotel Accommodations

The Salt Lake City Marriott City Center is the newest full service Marriott hotel in the Salt Lake City area. Located in the heart of the city's business and cultural district, the hotel is adjacent to the Gallivan Center, where guests can enjoy concerts and cultural events. The property features 359 rooms with city or mountain views and 15,000 square feet of conference space. All rooms have complimentary high speed internet access. Meeting rooms are elegantly appointed and equipped with the latest in interactive conference service technology. This 4 star, non-smoking hotel has an amazing indoor pool, spa and fitness center as well as an onsite Starbucks, restaurant and cozy lounge for getting together with friends. The hotel has direct access to the TRAX public transit line with free service to the downtown Salt Lake area. For more information about our host hotel, call (801) 961-8700 or visit [www.marriott.com/hotels/travel/slccc-salt-lake-city-marriott-city-center](http://www.marriott.com/hotels/travel/slccc-salt-lake-city-marriott-city-center). Single & Double rooms are **\$139** per night plus applicable state and local taxes. These rates are only guaranteed until September 1, 2008, so make your reservations NOW, as rooms will fill up fast! To reserve your hotel room and receive these special conference rates, click the link on our website [www.utahaazk.org](http://www.utahaazk.org).

### Transportation

For transportation from the Salt Lake City Airport to the Marriott City Center, we recommend Express Shuttle [www.expressshuttleutah.com](http://www.expressshuttleutah.com) who are offering a special rate of \$6.00 per person one way. Reservations will not be required for Express Shuttle only. Just let the Airport Desk agent know you are with the American Association of Zoo Keepers when you check in to receive the discounted rate. Taxi fare runs approximately \$25 one way to the hotel.



## Registration Goes GREEN!

This year registration will be offered online **only**. To register, click the registration link on our website [www.utahaazk.org](http://www.utahaazk.org). (This includes the trips & workshop.) For organizations and institutions, the online registration process will allow you to register multiple delegates under one account.

### Registration Fees\*:

Member (AAZK, ABMA, ICZ):	<b>\$195</b>
Nonmember or Late Registration	<b>\$245</b>
(Zoo Day)	<b>\$65</b>
* Late fee deadline: <b>August 1, 2008</b>	<b>\$50</b>

### Neonatal Workshop\*:

Member:	<b>\$50</b>
Nonmember:	<b>\$75</b>

\*Limited to 30 participants

### Daily Rates:

Wed. Sept. 24 <sup>th</sup> (Icebreaker)	<b>\$40</b>
Thurs. Sept. 25 <sup>th</sup>	<b>\$35</b>
Fri. Sept. 26 <sup>th</sup>	
Sat. Sept. 27 <sup>th</sup>	<b>\$35</b>
Sun. Sept 28 <sup>th</sup> (Luncheon)	<b>\$35</b>
Sun. Sept. 28 (Banquet)	<b>\$55</b>

We accept Discover, MasterCard, Visa and E-Checks. See the website for our refund policy.

## Program Notes

### Keynote Speakers

**Dr. Robert Sapolsky**, renowned author and the world's funniest neuroscientist, will be the opening keynote speaker for our 2008 national conference. His gift for storytelling led The New York Times to suggest, "If you crossed Jane Goodall with a borscht-belt comedian, she might have written a book like *"A Primate's Memoir- a Neuroscientist's Unconventional Life Among the Baboons"*, Sapolsky's account of his early years as a field biologist. Dr. Sapolsky is a wacky and brilliant presence. The humor and humanity he brings to sometimes-sobering subject matter make Dr. Sapolsky a fascinating speaker. In addition to *A Primate's Memoir*, Sapolsky has written three other books, including *The Trouble with Testosterone*, *Why Zebras Don't Get Ulcers*, and *Monkeyluv and Other Essays on our Lives as Animals*. Book signing available.

**Amy Sutherland**, author of *"Kicked, Bitten and Scratched- Life and Lessons at the World's Premier School for Exotic Animal Trainers"*, will share some of her unique stories from the year she shadowed students through Moorpark College's animal program. While observing the trainers at Moorpark, Amy had an epiphany: What if she used these training techniques with the human animals in her own life? Sutherland tells in her new book, *"What Shamu Taught Me About Love, Life and Marriage- Lessons for People from Animals and Their Trainers"*, how she took the trainers' lessons home. She describes her Alice-in-Wonderland experience of stumbling into a world where cheetahs walk nicely on leashes and elephants paint with watercolorsÖ leaving a new, improved Homo sapiens. Book signing available.

This year the conference program will be changing a bit and we have some exciting plans in store! The national conference will now include more interactive workshops that will enhance our organization's commitment to professional development and increase our conference delegates' take home value. The 2008 conference theme is focused on creativity, professionalism and initiative ...all elements that enhance our commitment to elevating animal care. Our ultimate goal is to inspire, inform and empower delegates and we're confident that these fresh opportunities and impressive speakers will certainly accomplish this! We envision that the conference will be very interactive, motivational and have some fun participatory activities mixed in!

So we would like to encourage YOU, animal care professionals from all related fields, to submit high quality topics for consideration. **LAST CALL!!** Abstracts are being accepted for papers, posters and workshops only until **May 1<sup>st</sup>** - see [www.utahaazk.org](http://www.utahaazk.org) for submission details. Have you initiated a new husbandry technique? Do you have a creative animal training technique? How about an innovative approach to conservation education? We're looking forward to some original, fun and fabulous ideas for this new format! Stay tuned for further updates.



## **Neonatal Symposium**

This will be a fee-based, full-day workshop for a maximum of 30 delegates. Registration will be on a first come, first serve basis available via the online registration process. Introduction to this symposium will include a full morning paper session\* open to all conference attendees, dedicated to neonatal care. It will discuss the history and future of infant animal care in a zoological setting. The paper session will be followed by a concurrent, full day closed workshop (lunch included) on: developing hand-rearing protocols for a number of species-specific animal groups, neonatal nutrition and pathology/medical concerns. \* If you are interested in contributing to the designated paper session on issues related neonatal care, please submit your abstract **by May 1, 2008**.

### **Photo Contest**

Enter in the 2008 AAZK National Conference Photo Contest! Entry fee is only \$10. The top three entries will win fabulous prizes. All full conference delegates will be able to vote, so start campaigning now. One entry per delegate. Photos must be 8" x 10" including any matting and they must be taken from the public's perspective to maintain a "naturalistic" view. All photos from the contest will be donated to the silent auction so you can purchase your favorites.

Watch for more information soon!

### **Don't Miss the Icebreaker!**

Our icebreaker will be held on Wednesday, September 24, 2008 at the **Discovery Gateway**, in the heart of The Gateway shopping district. In keeping with our theme of creativity, this premier children's museum will enable you to explore the depths of your imagination with hands-on, interactive exhibits in a fun atmosphere you won't soon forget!

### **Chapter Challenge: A New Twist**

**Your donation of \$350** will enter your Chapter into a drawing to win the following (two Chapters will have the opportunity to win in this category!):

- One complimentary conference registration
- Guest pass to the VIP book signing and meet-and-greet with keynote speaker Dr. Robert Sapolsky
- Verbal and written recognition throughout the conference

**Your donation of \$500** will enter your chapter into a drawing to win the following:

- All the above and...
- One complimentary hotel room for the duration of the conference

**Your donation of \$1250** will enter your chapter into a drawing to win the following:

- All the above and...
- One complimentary hotel room for the duration of the conference
- One complimentary round trip airfare to Salt Lake City
- Live elephant painting demonstration and keepsake artwork.

---

**Any Questions?** Email [utahaazk@hoglezoo.org](mailto:utahaazk@hoglezoo.org) or Website [www.utahaazk.org](http://www.utahaazk.org)

## Trips

Utah is a paradise for outdoor enthusiasts. The pre-conference and post-conference trips will explore the unique and natural diversity that Utah has to offer. The state's wild beauty ranges from rugged mountains and forests in northern Utah to the colorful landscapes of southern Utah's red rock canyons.

### **Pre-Conference Day Trip- Northern Utah Adventure** **September 24<sup>th</sup>, 2008**

Following an early morning departure (breakfast provided), we will visit the Bear River Migratory Bird Refuge. This area lies where the Bear River flows into the northeast arm of the Great Salt Lake. The Refuge protects critical habitat for migrating birds from both the Pacific and Central Flyways. Following a lovely autumn drive through the foothills of Logan Canyon (lunch provided) we will visit a National Wildlife Research field station which is focused on the behavior and ecology of coyote depredation, with an emphasis on non-lethal control methods. This trip is limited to 28 people. Registration will be on a first come, first serve basis available via the online registration process, so register soon at [www.utahaazk.org](http://www.utahaazk.org) ! Cost is \$35 per person.

### **Post-Conference Trip- Red Rock Country** **September 29, 30, Oct 1<sup>st</sup> 2008.**

Moab, Utah, located in SE Utah along the banks of the Colorado River, is the gateway to Arches and Canyonlands National Parks. There are more National Parks, State Parks and other major attractions within a 200 mile radius of Moab than any other location in Utah. Lunch will be provided on the four hour drive. We will be staying at a fantastic hotel in the center of downtown Moab, within walking distance to restaurants, local art galleries and the shopping district. That evening we will experience a cowboy Dutch oven style dinner and enjoy a nighttime motor boat tour with Canyonlands by Night tours up the Colorado River surrounded by 300-500 foot high canyon walls. The following day we will be accompanied by a naturalist on a full day hiking tour of Arches National Park. The hiking will be moderate, but everyone must be prepared for high elevations and desert conditions. That evening, guests are free to explore all that Moab has to offer. Perhaps you would like to reserve an evening jeep tour, boat ride, or rent bicycles? We should arrive back at the Marriot City Center on Oct. 1<sup>st</sup> by 1 PM. This trip is limited to 28 people. Registration will be on a first come, first serve basis available via the online registration process, so register soon at [www.utahaazk.org](http://www.utahaazk.org) ! Cost for the trip is \$200 excluding hotel. Rooms are available at a special rate of \$89 double occ. or more than double occ. \$99. We suggest you look for someone to room with. ***You must book your rooms on your own by August 2008.*** We will provide you with the hotel information once you have registered for the trip.



***See you in Salt Lake this September!***

# REACTIONS

## A Question and Answer Forum for the Zoo Professional on Crisis Management

*By William K. Baker, Jr., Director  
Abilene Zoo, Abilene, TX*



### Question

In a natural disaster, what emergency items do you recommend for both personal animals and those at a zoological facility?

### Comments

Natural disasters have the potential to be the most devastating of all potential hardships to strike an animal facility. The catastrophic damage from Hurricanes Andrew and Katrina are classic examples. Essentially, if you are in an area that is prone to blizzards, earthquakes, flooding, hurricanes, or tornados you unfortunately have to plan for the worst including a complete evacuation. However, the staff at a facility should weigh a potential evacuation very carefully, as it may be unnecessary.

### Emergency supplies

Several facilities have successfully weathered hurricanes with limited loss of life. Thankfully most exhibits and night houses that hold dangerous animals are heavily reinforced and tend to do well in severe weather circumstances. Historically, the approach that I have worked from is that crisis equipment can be broken down into two classes, Dedicated Crisis Equipment, (DCE) that is utilized in the event of an actual crisis and Emergency Support Equipment, (ESE) which is utilized after the fact.

- I. Crisis Management Equipment
  1. Dedicated Crisis Equipment (DCE)
    - A. crisis response equipment
      - a. firearms and dart rifle
      - b. flashlights and binoculars
      - c. first aid and trauma kits
      - d. animal capture and restraint
    - B. rescue equipment
      - a. ladders
      - b. tool kit
      - c. entry tools
      - d. cutting torch
  2. Emergency Support Equipment (ESE)
    - A. vital services equipment
      - a. generators and pumps
      - b. lights, heaters, and fans
      - c. animal transport crates
      - d. propane heat units and tanks

- B. fabrication equipment
  - a. tool kits
  - b. netting and shade cloth
  - c. containment material
  - d. construction material

For the purposes of this discussion, I'll focus on Emergency Support Equipment. Effectively, this is the equipment that will allow a facility to resume operations or provide some sense of normalcy after the crisis has occurred. Vital services equipment is the equipment that will actually restore or maintain the utilities, which most facilities rely upon for water, electricity, and gas. Water storage tanks or towers can replace broken water lines. Back-up or stand-by generators can replace disrupted electrical grids, which in turn provides lighting, heaters, fans, hot-wires, and pump units. Propane can effectively replace broken gas lines which provides heat, hot water, and in some cases power for generators. Solar power and well water can also provide supplemental service in certain situations.

Fabrication equipment is best described as building materials specific to providing temporary shelter, temporary containment, or utilized to repair existing structures. This can literally run the gamut from tools to actually perform the repairs all the way up to and including building materials. Examples would include plywood (multiple thickness), screws, nails, staples, tar paper, roofing materials, treated posts, "1 x 1" mesh, 2" x 4" mesh (8-gauge), solar powered hot-wire systems, 1" x 1" netting (rolled), steel cable and tension bars, eye hooks, bagged concrete, shade cloth, plastic zip ties, portable cattle panels and caging units, water and feed buckets, sheet metal, angle iron, welding rods and a portable welder. Actually, this list could go on forever as every facility is a little different from the next and the needs will shift based on exhibit design and the diversity of the animal collection.

I also try to place with this material one completely stocked fabrication tool kit, one portable generator, one portable pump, and one cutting torch unit with full bottles on a dolly, plus a grinder and a chainsaw. The associated safety equipment such as gloves, glasses, and hearing protection are usually factored in as well. The fabrication type of tool kit usually could best be identified as a master set in a large rolling cabinet or job-site style toolbox. Either way, the only limiter is how much money that you want to spend. Ideally, the more you can spend the better off you and the facility will be when the need arises.

I recommend a lifetime guarantee brand such as Craftsman®, Kobalt®, Snap-On®, or any of the other brands that are popular with mechanics. Each set should have the full range of tools including wrenches, ratchets, screwdrivers, nut drivers, pliers, hammers, hex and Allen wrenches, and saws. Something else to consider is purchasing a set of rechargeable power tools. These are absolutely invaluable with the Fabrication Equipment style tool kits and can easily be recharged from a portable generator for continued usage.

Storage of all of this equipment presents a challenge. My answer to this problem is to purchase a "Conex-style" storage container, such as those used by air and sea freight companies, steel in nature, and equipped with lockable hardware they provide a secure and dry place to store virtually anything.

I also recommend using a high quality lock with extremely limited key access and partially burying the unit in the ground with concrete retaining walls to prevent potential damage in severe weather, (tornado or hurricane). Once complete this storage unit can supply a small repair crew with anything they could need. Final point, I do recommend installing battery-powered lights inside the storage unit, as they can get quite dark. Another point to remember are personal supplies for you and your animals:

### Personal Emergency Items

- Water – Expect to use (2) liters of water per person per day. Plan on a seven-day supply.
- Food – Ready to eat foods that require no refrigeration. Examples include canned and dry goods, dehydrated foods, and high-energy foods. Plan on a seven-day supply.
- Shelter – Tents, plastic or canvas tarps are all good choices along with a synthetic sleeping bag.
- A multi-person first aid kit with minor trauma capabilities.
- A non-electric can opener.
- Sun block and pest repellent.
- Waterproof flashlight and extra batteries.
- Waterproof matches.
- A compass and detailed map of your local area, (store in a plastic zip bag).
- World band radio and extra batteries.
- Cash, traveler's checks, and a credit card.
- Shut-off wrench to turn gas and or water service off.
- Personal hygiene and sanitation supplies.
- Personal medical or prescription based drugs, (insulin etc.)
- Important family documents and records, (especially insurance policies, birth records, passports, a household inventory, and any applicable animal or veterinary records).

### Animal Emergency Items

- Always factor in food, water, and veterinary supplies for each animal. At a minimum, I recommend a three-day supply and in an ideal situation a 14 -day supply. A seven-day supply is safe.
- You may have to forgo using a portable generator for other things to keep your meat freezer running. Ice chests are a “must have” item and I recommend the large maritime style units as, in my experience, they tend to hold the cold longer .
- Vari-kennels® are a “must have” item for your items. Over the years I have used many different brands and inevitably I always find this brand the most reliable.
- Always have duplicate copies of your veterinary records either with you, in a distant location, or better yet preserved on a flash drive or in cyberspace.
- Whenever possible try to maintain an emergency animal trauma kit for veterinary emergencies.
- Environmental enrichment items are a “must have” to prevent boredom and help lessen stressors.

### Final comments

It truly is impossible to prepare for every crisis. The key is to base your approach on addressing safety issues in advance and developing a broad based approach to crisis management. Conversely, any of the aforementioned recommendations can be integrated into your approach in varying degrees. For instance, night houses come in all shapes and sizes to fit virtually any budgetary situation. Safety and integrity can be maintained by sacrificing interior square footage, as you ideally want to choose basic features over space when faced with financial constraints.

Another approach is to gradually budget towards development over time and not attempt to take all of this on in the same fiscal year. Any progress made is still progress and your animals, peers, and regulatory agencies will note it. Always remember, the single best crisis resource is your ability to calmly manage a situation and resolve it in a timely manner. If you can do that, then you already have the single best tool that you could ever want. Over the years this list has grown and the parameters have changed to adapt to the zoological industry, just as we as professionals have as well.

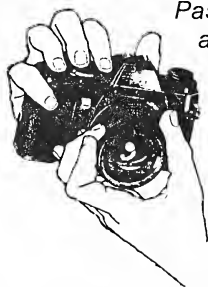
**Next Month:** You have often spoken of your free contact training experiences with felids, what have they taught you?

*If you would like to submit a question for this column or have comments on previously published materials, please send them to AAZK, Inc., 3601 S.W. 29th St., Suite 133, Topeka, KS 66614 Attn: Reactions/AKF*

(About the Author: Since 1985 Bill has been active in the fields of science, zoology, and wildlife management. His education and experience include a B.S. in wildlife management and post-graduate studies in zoology, Lab and Museum Assistant, Shoot Team Leader, ERT Member, Large Mammal Keeper, Senior Keeper, and Zoo Curator at various zoological facilities. His area of research is crisis management in zoological institutions, which draws upon practical experience and training as a Rescue Diver, Hunter Safety Instructor, NRA Firearms Instructor, and Red Cross CPR/First Aid Instructor. Away from work he operates Panthera Research, a research and consulting firm, and may be contacted at [puma\\_cat@hotmail.com](mailto:puma_cat@hotmail.com))

## ATTENTION PHOTOGRAPHERS !!

We would like to begin putting together a library of photographs to be utilized in Animal Keepers' Forum either as an occasional four-color cover or in conjunction with material inside the journal. We plan to gather this photo library electronically in jpg or tif formats.



Past President Denise Wagner will be gathering and organizing this photo archive and photographers interested in submitting photos should send them to her at [denise.wagner@aazk.org](mailto:denise.wagner@aazk.org) Photos should be high resolution and in either jpg or tif format. When sending, please include common and scientific name of species featured in photo. Each photo must be accompanied by a Photo Release Form that is available on the AAZK website. You may submit the form electronically to Denise or print it out, obtain required signatures and send by regular mail to Susan Chan, AAZK, Inc., 3601 SW 29<sup>th</sup> St., Suite 133, Topeka, KS 66614-2054 Attn: photo release.

AAZK, Inc. does not pay for photographs, but will give appropriate photo credit to individual photographers and/or institutions whenever a photo is utilized and a copy of the AKF issue in which the photograph appears will be sent to the photographer.



## Big Cat Internships Available

Join us in  
"Saving Tigers One by One"

As seen on Animal Planet®  
"Growing Up Tiger"

Apply at [www.tigercreek.org](http://www.tigercreek.org)



Learn about Big Cat Management. Internship involves Animal Care Apprentice and Public Education. We offer experience that counts towards employment.

TIGER MISSING LINK FOUNDATION / TIGER CREEK WILDLIFE REFUGE

# Enrichment and Husbandry for Hospitalized White-fronted Marmosets (*Callithrix geoffroyi*)

By

Leanne Blinco, Veterinary Services Department  
Disney's Animal Kingdom, Bay Lake, Florida

At Disney's Animal Kingdom (DAK), we have a structured enrichment program that is fully integrated into the animal management program. Animal, keeper and guest safety are always our first consideration when providing enrichment for our animals. The goal of the animals' enrichment plan is to allow the animals to have choices and control within their environment. We try to make our enrichment programs proactive as well as reactive when necessary. These enrichment programs decrease undesirable behaviors and promote animal welfare.

Providing enrichment for animals that are hospitalized is very important as well as challenging. The severity of the injury/illness will determine what type of enrichment we will use for each animal. The hospital staff continually partners with other animal areas to determine which enrichment items are appropriate for that species of animal.

This paper will discuss the enrichment and husbandry techniques used in housing a group of white-fronted marmosets (*Callithrix geoffroyi*) in the veterinary hospital. White-fronted marmosets are a gregarious species of monkey. Wild marmosets spend a great deal of their time foraging for their food throughout the day. In captivity, marmosets are provided with a nutritionally balanced diet that they may quickly consume. By inventing creative ways to present food and increase the time it took for the animals' to forage, the animals were both physically and mentally stimulated.

The marmoset group of six individuals, two adults (dam and sire) and four siblings (two sets of twins), was slated for shipment to another zoological facility. During the required pre-shipment testing period, the animals were found on a fecal culture to be shedding *Campylobacter* sp., a bacterial pathogen known to cause intestinal disease in primates. In order to medicate the animals they were moved to the veterinary hospital. Their enclosure in the hospital was 14'6"x 3'6"x 10' (4.45m x 1.09m x 3.04m) with concrete flooring, wire 1 x 1 inch (2.54cm x 2.54cm) mesh caging and a sky light. A shift door was installed to allow them to shift from side to side daily for cleaning.



**Fig. 1** Medication can be injected into the crickets for sick/injured animals.

Crickets were the insect food of choice for the marmosets [Figure 1]. The animals became accustomed to lining up on a branch and allowing the keepers to hand feed them. This allowed us to medicate all of the animals individually while still housing them in a group.

During their stay at the hospital, one of the juvenile females fractured her right leg. The exact cause of the injury is unknown, but we assumed that the animal got her leg caught in the cage wire. Her leg was

repaired using an intramedullary pin and an external fixation device by standard techniques. As a result of the injury and subsequent convalescence, the hospital stay for the entire group was extended for three months. The injured animal was initially housed in a smaller rolling wire cage next to the group to limit her mobility while maintaining visual access to her family. Once her repaired fractured leg was deemed stable (20-day period), she was introduced back into the group.

Once it became warmer outside and the injured animal became more mobile, the marmosets were moved to an indoor/outdoor enclosure. The inside portion of the enclosure measured 9'x 7'6"x 9'10" (2.74m x 2.04m x 2.77m) with a concrete floor and a 1 x 1 inch wire mesh front with a shift door in the back wall. The outside portion is a 1 x 1 inch wire mesh area measuring 18'9"x 7'2"x 10'10" (5.76m x 2.19m x 3.07m) with a concrete floor and a small overhang near the front wall that leads to the inside portion.



**Fig. 2** The marmosets are not intimidated by the instability or height of enrichment items. This hammock was one of many enrichment items.

while being housed in the indoor/outdoor enclosure.

The animals routinely nested in the enrichment items offered to them daily in the inside stall, so confining them to a smaller area for capture, restraint and crating reduced the amount of stress for the staff and animals. Once the injured animal was deemed medically cleared from her injury, plans were made to move the animals to their future zoological institution. Providing an enriching environment for white-fronted marmosets proved to be an exciting daily challenge for the animals as well as the animal care staff that cared for them while they were in the veterinary hospital.



**Fig. 3** Ice cubes spiked with fruit and insects were clipped to cage furniture to provide a time-released enrichment item



**Fig. 4** A rope was used to suspend a large Boomer Ball® from the walls. The marmosets would use this Boomer Ball® as a nest, hide spot, and a place to forage.

**Photo credits:** Leanne Blinco

**Acknowledgements:** My appreciation goes to Dr. Scott Terrell, Lori Grady and Marty MacPhee for their valued input on the content of this paper.



---

## Have You Sent AO Your E-mail Address Yet?

In order to better communicate with our members, and also save the Association the rising costs of mailings/postage, we are working to establish an AAZK member e-mail database. With such a database we would be able to send out electronic membership renewal notices, information about upcoming conferences, and other Association news. In order to make this work, we need your help.

Please send an e-mail to Barbara Manspeaker at [aazkoffice@zk.kscoxmail.com](mailto:aazkoffice@zk.kscoxmail.com) with the words "AAZK Email Database" in the subject line. Please be assured that your e-mail address will not be shared with any other group or individual without your express permission. We are simply looking for ways to stay in touch with you as a member and to also help cut the costs of mailings and postage for the organization. Thanks in advance for helping us achieve this cost-cutting goal.

---

## BFR Yahoo® Group Established

There is a new Yahoo® group email for Bowling For Rhinos Coordinators. If you would like to be part of this email group, please email Barbie Wilson at [rhinobarbie@hotmail.com](mailto:rhinobarbie@hotmail.com). This group offers BFR Coordinators the opportunity communicate with each other on questions about t-shirts, bowling alley prices, how to get more support from your zoo, etc.



The Association of Zoo Veterinary Technicians will be hosting their Twenty-eighth Annual Conference October 2-6, 2008 at Buttonwood Park Zoo in Newbedford, MA. If you would like more information please visit [www.azvt.org](http://www.azvt.org)

# Almost Famous:

## The Story of the Clouded Leopard Project and its Rising Star

By

*Karen Povey, Clouded Leopard Project President  
Senior Staff Biologist Point Defiance Zoo & Aquarium, Tacoma, WA*

Despite the public's fascination with big cats, the clouded leopard (*Neofelis nebulosa*) has consistently kept a lower profile than its more famous cousins. The clouded leopard's secretive nature and the challenges of research in its tropical forest habitat have contributed to a lack of information about its wild behavior. In zoos, the challenges associated with successfully displaying clouded leopards have resulted in limited exhibit opportunities. Despite the clouded leopard's remarkable beauty, unique adaptations, and relatively large size, the challenges associated with studying wild clouded leopards and exhibiting them in zoos have conspired to make this species one of the least recognized or appreciated of the big cats.

After the 1998 arrival of a clouded leopard at Point Defiance Zoo & Aquarium (PDZA) in Tacoma, Washington, zookeepers were frustrated by both the lack of information available about clouded leopards and the almost total lack of awareness about clouded leopards demonstrated by PDZA visitors.

To remedy this situation, the Point Defiance AAZK Chapter undertook an initiative called the Clouded Leopard Project (CLP) in 2000, working with the Zoo to bring attention to clouded leopard issues.



Adult clouded leopard at Point  
Defiance Zoo & Aquarium  
*(Photo by Jan Smith)*

What began as a small, grassroots effort by PDZA keepers has now taken a big step to progress to a new, even more ambitious level. The Clouded Leopard Project began 2008 by moving out from under the umbrella of AAZK and becoming its own entity as a Washington State non-profit corporation. CLP is currently working on gaining its 501(c) (3) federal tax-exempt status – an involved process to ensure that donations to the CLP are fully tax deductible. This change will better position the Clouded Leopard Project to seek foundation grants and corporate sponsorships to further its conservation efforts.

The Clouded Leopard Project promotes clouded leopard conservation by supporting field research, implementing education initiatives in range countries, and bringing global awareness to clouded leopard conservation issues. Since the founding of the Clouded Leopard Project, new details are beginning to emerge about this little known species, thanks to the efforts of scientists working in both clouded leopard range countries and in zoos. The

CLP plays an important role in not only providing financial assistance to research projects, but also by serving as a vital conduit to channel this new information to the public to increase awareness and support for clouded leopard conservation. As a result, the clouded leopard's public appeal is on the rise, with this charismatic species now poised to become a wild cat superstar.

### **Clouded Leopard Project Fundraising Activities**

One of CLP's primary objectives is to raise funds to support clouded leopard research and conservation. Funds are raised on PDZA grounds through a donation station and by selling Clouded Leopard Project items such as t-shirts, note cards, and posters in the PDZA gift shop. These items are also sold through the CLP's website, [www.cloudedleopard.org](http://www.cloudedleopard.org). In addition, the website augments fundraising by offering

Clouded Leopard Protector, Crusader, and Conservator levels of donation packages. CLP also offers a clouded leopard “adoption” opportunity that directly supports conservation efforts in Thailand’s Khao Yai National Park. Through all these means, nearly \$30,000 has been raised for clouded leopard conservation since 2000.

Funds raised have been used to support a variety of projects including:

- Lon Grassman’s carnivore survey in Phu Khieo Wildlife Sanctuary, Thailand
- Lon Grassman and Jan Janecka’s wild cat genetics evaluation in Thailand
- WildAid & Smithsonian National Zoo’s carnivore monitoring project and ranger support in Khao Yai National Park, Thailand
- Andreas Wilting’s Borneo clouded leopard survey
- Point Defiance Zoo & Aquarium’s Southeast Asia Wild Cat Education Initiative
- PeunPa community outreach in Thailand’s Khao Yai region
- Assam Forestry Department’s clouded leopard awareness project, Assam, India
- Khao Kheow Open Zoo’s clouded leopard education festival, Thailand
- Education for Nature, Vietnam’s Green Forest Magazine: Cats of Vietnam

### **Clouded Leopard Project Internet-based Education Efforts**

The primary vehicle for raising public awareness about clouded leopard conservation issues is the CLP website. This website also serves as the official website of the Clouded Leopard SSP®. The comprehensive website was originally developed pro bono by a Seattle web design firm. In 2007, CLP was fortunate to gain the services of a highly skilled web engineer to re-work the site, add considerable new content, and greatly enhance its merchandising portion. From its inception, the Clouded Leopard Project website has been the primary source for comprehensive clouded leopard information on the Internet, providing news about research, materials for students and teachers, and information on zoos exhibiting clouded leopards.

In early 2008, CLP debuted its new blog, *Paws to Consider*, accessible through the website. The blog provides a wide variety of information relating to the world of clouded leopards in an informal format. Blog authors share information and thoughts on the conservation issues facing Southeast Asian wildlife, update Clouded Leopard Project activities, provide news on field projects, and provide photos and anecdotes about the clouded leopards CLP Board members work with in both the United States and Thailand.

### ***In Situ* Conservation Projects**

In addition to supporting clouded leopard research efforts and providing global clouded leopard education, CLP is also active in several other projects that advance clouded leopard conservation in Asia. Through a partnership with Point Defiance Zoo & Aquarium, CLP has developed educational materials, awareness programs, and provided teacher training to communities in clouded leopard range countries. Currently, CLP and PDZA are producing a Thai/English storybook that will be distributed free of charge to students in communities bordering protected areas. The book will chronicle the work of a clouded leopard researcher to showcase the role of science in protecting wildlife. The book is currently in production with an anticipated release date of early 2009.

Perhaps the most exciting project on CLP’s horizon is the coordination of the first-ever Clouded Leopard and Small Felid Conservation Summit scheduled to take place in February 2009 in Bangkok,

Thailand. This effort will be facilitated by the Conservation Breeding Specialist Group and be planned and supported by the Point Defiance Zoo & Aquarium, Clouded Leopard Project, the Smithsonian Institution, and Bangkok's Kasetsart University. This workshop will bring together researchers and conservationists from clouded leopard range countries to exchange information and develop a long-term conservation strategy for these species in Southeast Asia. The event will also be a great opportunity to bring media attention to the threats facing these species and emphasizing the need for increasing conservation efforts on their behalf.



PeunPa Foundation researchers in Thailand's Khap Yai National Park (Photo by Karen Povey)

### Almost Famous

One reason that clouded leopards deserve increasing attention is the recent revelation that there are two completely separate species of clouded leopards. In a study comparing differences in clouded leopard coat patterns and coloration throughout the cat's range, researchers concluded that individuals found on the islands of Borneo and Sumatra are markedly different from animals found on the Southeast Asian mainland. These observations have been supported by genetic testing that determined the two populations of clouded leopards are so distinct as to warrant classifying them as different species: the clouded leopard, *Neofelis nebulosa* and the Sundaland clouded leopard, *Neofelis diardi*. This discovery was widely reported in the general media, leading to a marked increase in visits to the CLP website.



Wild clouded leopard in Thailand's Khao Yai National Park (Photo: PeunPa Foundation)

With the clouded leopard's escalating media attention, increasing number of zoo displays, and a growing amount of online information seeking, it is clear that interest in clouded leopards is rising. The mounting numbers of studies of both wild and captive clouded leopards is fueling this change in status by revealing new details about the cat's private life. The Clouded Leopard Project hopes to play a pivotal role in continuing to raise the profile of the clouded leopard. By helping the clouded leopard achieve a more celebrated status, the CLP aims to garner the high level of support necessary to significantly impact clouded leopard conservation.

With the support of the public and working with partners both in the field and in zoos, the Clouded Leopard Project is dedicated to finding ways to protect habitat, eliminate poaching, and promote environmental stewardship in clouded leopard range countries to ensure that clouded leopard populations will persist into the future.

# The Animal Training Committee Presents



**Where you can share your training experiences!**

*Training Tales Editors – Jay Pratte, Zoo Atlanta;  
Kim Kezer, Zoo New England; and Angela Binney, Disney's Animal Kingdom*

## Using Enrichment as a Training Tool

*By Lynn Yakubins, Gorilla/Small Mammal Keeper  
Riverbanks Zoo, Columbia, SC*

An important part of good animal husbandry is obtaining accurate weights on the animals under our care. This routine practice turned out to be a challenge for one of our male gorillas (*Gorilla gorilla*), Mike. Our scale is elevated from the ground and Mike was hesitant to sit on the scale.

My first goal was to just get him onto the scale. At first, I only asked him to touch his target pole. I would move around his enclosure, asking him to touch the target pole wherever I went. He quickly learned this was a fun and easy way for him to earn rewards. Occasionally, the target would be above the scale. Therefore, he had to climb on the scale to touch the target. After such a large accomplishment, not only would Mike receive a food reward, but I would also move the target far away from the scale. So by climbing on the scale, he earned the opportunity to get far away from the perceived “scary” object.

My second goal took a few months to tackle – getting both his feet on the scale at the same time. I taught him to touch two targets with his feet until they were both over the scale. Opportunistically, one day while I was rewarding his correct foot position, he relaxed and put both feet down on the scale at the same time. I used the verbal cue “foot down” and captured this behavior. After a few sessions, I could give him the verbal cue “foot down” and he would place both feet on the scale before receiving his food.

Next, I needed him to remove his hands from the mesh barrier. It seemed he was only comfortable if he could cling to the mesh with at least one hand. I tried various solutions, but none of them worked.

Therefore, I turned to the gorilla keepers list serve for help. I received a response suggesting that I construct a PVC pipe enrichment device that would engage both of Mike's hands, thus getting his hands off the mesh. The device consisted of a small PVC pipe with a steel rod slid through and bolted in place at one end of the PVC pipe. This rod prevented the gorilla from pulling the device into the enclosure. A small amount of cooked apples were smeared inside the pipe.

Then, the day came to try it out. I stationed Mike on the scale and once his feet were in the proper position, I slid the PVC device through the mesh barrier. Mike was immediately captivated by the device. With apprehension gone, he took both hands off the mesh to investigate the device. After

11 months, we were finally able to gain an accurate weight on Mike! I am also using the device to target train Mike, so food does not always have to be used to obtain his weight.

This training project emphasized the importance of collaboration among zoo keepers as well as the value of using enrichment to help with training goals.

*(Photos provided by the author)*



The PVC pipe used in scale training the gorilla.



Mike, the gorilla, using the enrichment device on the scale platform.

***ATC Comments:***

*This article is important for a number of reasons. The first is that it is a shining example of the creative process. While scale training is a very common and useful behavioral goal, often training the animal to stand still and not touching any walls or mesh (or the floor) during weight collection can be challenging. This trainer used an innovative approach, showing adaptability and foresight. The use of the enrichment device to capitalize on an animal's natural history (curiosity and investigation) to shape a position is clever and ended up being rewarding for both trainer and*

gorilla. And continued interest in the device with and without food present, implies that the device has become a conditioned or secondary reinforcer, thus allowing the trainer to put the primary reinforcer on a variable schedule.

Another important aspect of the author's description lies in her use of the gorilla keeper's list-serv as a resource for contacting peers. No man is an island, and it always pays to talk to others to learn if they have experience or insight that can assist. The various list-servs available to the zoo community provide ample and rapid resources for keepers or trainers struggling to overcome challenges, and the author succeeded in meeting her goals as a result of taking advantage of these. Bravo!

You are invited to submit material for the Training Tales Column. See guidelines below for submission, Drawings or photos of training are encouraged. Contact Jay Pratte at [jpratte@zooatlanta.org](mailto:jpratte@zooatlanta.org) for more details or to submit an entry.

(Training ideas appearing in this column have not necessarily been tested by the editors for safety considerations. Always think ahead and use good judgement when trying new training techniques with your animals.)

## **The Animal Training Committee Presents**

### *Training Tales...*



*Where you can share your  
training experiences!*

Just a reminder, submit your "Training Tales" and experiences in operant conditioning to share with *Animal Keepers' Forum* readers. This opportunity provides a convenient outlet for you to exhibit your training challenges, methods and milestones with the AAZK member network. See a more detailed description of the Training Tales concept in the August 2006 AKF on page 331. Please submit entries based on the following guidelines:

- a) Submit a brief description of a training project at your zoo (500 words or less, in text or bullet points). Details should include the following:
  - Define the training goal
  - List important steps
  - Timeline used
  - Tips you learned along the way
- b) Include 1-2 digital photos (jpg or tif) that clearly depict the animal in the learning process or performing the desired goal (list source and photographer of each image).

Please send entries or questions to: Jay Pratte at [jpratte@zooatlanta.org](mailto:jpratte@zooatlanta.org) (use Training Tales Entry as the subject line). Happy training!

# Conservation/Legislative Update

Column Coordinators: Becky Richendollar, North Carolina Zoo  
and Greg McKinney, Philadelphia PA

This month's column was put together by  
column co-coordinator Becky Richendollar



**Sea Turtle to Wear Prosthetic Flipper** - A three-year-old green sea turtle (*Chelonia mydas*) with only one flipper will soon be wearing a prosthesis.

The turtle, which was found in 2005 with wounds that probably came from a shark attack, lives at Sea Turtle, Inc., a Texas-based turtle rescue organization. Now the University of Texas Dental Branch is creating the artificial flipper. They have been experimenting with different types of silicon to determine what will be most appropriate. The flipper may have to be replaced periodically, depending on how it will be attached to the turtle.

The turtle, named Allison, is not a candidate to be released. Green sea turtles can live in captivity with two flippers and are often released into the wild if they have three of their four flippers. But a turtle with only one flipper would be unable to swim correctly and could not survive.

A dolphin in Japan was given an artificial tailfin in 2003. The scientists at Okinawa Churaumi Aquarium continue to make improvements to the design, but the dolphin has responded well to the tailfin. *Source: National Geographic News, February 29, 2008*

**Study Shows Released Zoo Animals Not Surviving** - A new study in the journal *Biological Conservation* found that most captive-bred carnivores die when returned to their natural habitat. According to the study, which examined 45 past carnivore reintroductions throughout the world, the odds of large carnivores surviving freedom are only 33%. Lead author Kristen Jule noted that "animals in captivity do not usually have the natural behaviors needed for success in the wild." Jule pointed to the animals' lack of hunting skills, social skills, and lack of fear towards humans as major disadvantages.

The research examined the reintroduction efforts for 17 species, including tigers, wolves, lynx, cheetahs, brown bears, and otters. Over half of the animals' deaths were due to humans. Animals lost their lives to vehicle collisions and also deliberate shootings. In addition, the study showed that captive-born carnivores were more likely to starve to death, and were more susceptible to disease.

The researchers argue for better pre-release training to allow the carnivores to improve hunting and social skills. Sarah Christie, carnivore conservation program manager for the Zoological Society of London said that these innovative reintroduction strategies may not have occurred historically, "but people who are planning and thinking ahead already have these ideas in mind." Christie is currently working on a project to reintroduce Amur leopards in Russia using captive-bred animals from European zoos. *Source: National Geographic News, January 23, 2008*

**U.S. Court Rules in Favor of Migratory Birds** - A federal court ruled in February that cell phone towers must be equipped to protect migratory birds. According to environmentalists, aviation lights on communications towers can confuse birds, especially in fog. This decision specifically addressed 6,000 new towers that were to be built along the Gulf Coast. This area is a major migratory corridor for birds. The judges said that the Federal Communications Commission should consult with wildlife experts and conduct environmental impact assessments before issuing permits for the towers.

The American Bird Conservancy and other environmental groups had sued the Federal Communications Commission, saying that each year five million to 50 million birds are killed in accidents involving communications towers.



Environmental groups say birds could be saved if the FCC changes its requirements for tower lighting by placing white strobe lights on the towers to alert the birds. Industry representatives say the lights would be expensive and possibly not beneficial. *Source: E&E News, February 19, 2008*

**Man Cited for Animal Harassment at San Francisco Zoo** - In early March, a man who allegedly threw acorns at a rhinoceros at the San Francisco Zoo was cited for misdemeanor animal taunting. The 26-year-old suspect was observed throwing acorns at a male black rhino named Mashaki. Police say the suspect could pay a fine and possibly serve jail time.

This event comes two months after the deadly tiger mauling at the zoo. After that incident, the zoo posted signs asking visitors to not harass the animals. *Source: The Associated Press, March 1, 2008*

**Rare Oryx Returning to the Wild** - A male scimitar-horned oryx (*Oryx dammah*) from the National Zoo's Conservation and Research Center may be the key to his species' survival. The oryx, along with eight others from zoos around the world, was sent to Tunisia late last year. They will eventually be reintroduced into the wild there, where they have not existed since the 1970s.

Scientists are handling the reintroduction carefully. For now, the animals are being held in a 20,000 acre fenced in area in Dghoumes National Park. While in the safety of this area, it is hoped that the five males and four females will reproduce and become acclimated to their desert surroundings. Once a sustainable population exists, the fences will be removed. Scientists say it could be a decade before the fences are taken down.

Oryx were once common in the wild. As recently as 1900, there were as many as one million of them in North Africa. But their numbers began to dwindle as they were hunted, both for sport and food. To ensure that the same problems do not plague the oryx that are being reintroduced into the wild, the Tunisian government is planning conservation programs to educate local people about the importance of protecting the animals.

The plan to send oryx to Tunisia came about after that country approached the Association of Zoos and Aquariums, the European Association of Zoos and Aquariums, and the Secretariat for the Convention on Migratory Species for help. Population managers for oryx decided which of the animals were the most genetically valuable to send to Tunisia. *Source: Science News, March 4, 2008*

**Whooping Cranes vs. Wind Turbines** - Over 60 years ago the Whooping Crane (*Grus americana*) population was driven down to only 15 individuals. After conservation groups fought to rally the birds' numbers, the population rose to around 360 wild Whooping Cranes. Now the cranes are facing a new foe: environmentally-friendly wind farms. "Companies want to put their farms where the best wind is, and that overlaps with the migration corridor of the whooping crane," Tom Stehn, the whooping crane coordinator of the U.S. Fish and Wildlife Service, said. "There are areas where we know large numbers of whooping cranes stop (during migration) and we would like wind companies to avoid those areas, with a good buffer zone," Stehn said.

The birds, which stand around five feet tall, migrate annually between wetlands on the coast of Texas and the Northwest Territories in Canada, flying a route that corresponds to the corridor wind companies are looking to as their industry grows.

Audubon's director of bird conservation Greg Butcher said, "We're very much in favor of wind power because we're so concerned about the other sources of energy that are contributing to global warming. The trick is to get the siting and the design of the turbines right so that big birds like the whooping crane can avoid collision."



In addition to concerns of collision, environmentalists fear that unchecked development of wind turbines would create a loss of natural habitat for whooping cranes and other birds.

Laurie Jodziewicz, a spokeswoman for the American Wind Energy Association (AWEA), said the renewable energy industry was aware of the threat to bird species of wind development, and has engaged environmental groups, government agencies and academics in talks to seek ways to expand production without harming wildlife. *Source: National Geographic News, March 4, 2008*

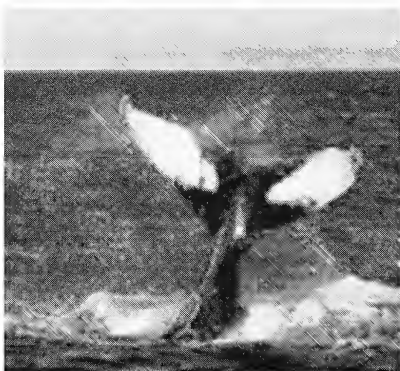
**Mapping the Giant Panda Genome** - Chinese scientists have announced plans to sequence the genome of the giant panda (*Ailuropoda melanoleuca*). Their aim is to help control diseases that affect the animal and to help understand its low level of sexual activity. “(This is) the first genome project to be undertaken specifically to gather information that will contribute to conservation efforts for an endangered species,” quoted Oliver Ryder, from the San Diego Zoo’s Center for Conservation and Research for Endangered Species. The researchers hope to create a draft sequence of the giant panda genome within the next six months. The giant panda genome is roughly the same size as the human genome.

“The project will help scientists understand the genetic basis for the giant panda’s adaptation to its special diet and behavioural style and reveal the history of their population isolation and migration,” said Zhang Yaping, a member of the Chinese Academy of Sciences. As of November last year, China had 239 giant pandas in captivity, while about 1,590 more are thought to be living in the wild. *Source: AFP, March 8, 2008*



**Japan Denies Vote-buying on Whaling** - Japan has denied paying for delegates of small states to attend international whaling negotiations after the premier of the Solomon Islands said he received an offer from Tokyo. Solomons Prime Minister Derek Sikua has said that Japan offered to pay for the country’s delegates to attend the latest IWC meeting in London. Japan has long faced accusations of vote-buying as a growing number of developing countries with little tradition of whaling enter the International Whaling Commission (IWC).

But Hideki Moronuki, the whaling chief at Japan’s Fisheries Agency, said: “There is no truth to it.”



“Japan has never made any offer at all to pay costs,” he told AFP. Sikua said in a joint press conference with visiting Australian Prime Minister Kevin Rudd, a strong whaling opponent, that he turned down the offer and that his country therefore did not attend the meeting last week.

Japan is pushing for the sharply divided IWC to end its 1986 moratorium on commercial whaling, which is backed by major Western nations. Japan, which says whaling is part of its culture, continues to kill up to 1,000 whales a year using a loophole that allows “lethal research” on the giant mammals. Only Norway and Iceland defy the IWC moratorium outright.

Moronuki said Sikua may have confused the London meet with a seminar recently in Tokyo to which Japan invited delegates from 12 developing nations that have recently joined or are considering joining the IWC. Delegates from Angola, Cambodia, Congo, Equatorial Guinea, Eritrea, Ghana, Laos, Malawi, Palau, Tanzania and Vanuatu held talks in Tokyo and visited traditional whaling town Taiji in western Japan. Micronesia sent embassy officials to participate in the seminar. But the Japanese foreign ministry, which organised the seminar, said the Solomon Islands was not even invited. The foreign ministry official also denied Japan pays for IWC delegates from small states.

*Source: AFP.com March 8, 2008*

**Rare Froglets Found in New Zealand** - According to researchers, rare and threatened species of tiny frog has been found breeding in a New Zealand animal park, meaning its future may now be more secure. The 13 finger nail-sized Maud Island froglets (*Leiopelma pakeka*) were discovered clinging to the backs of full-grown male frogs at the Karori Wildlife Sanctuary in the capital Wellington, said researcher Kerri Lukis. The frogs are normally found only on two islands in the Marlborough Sounds region of New Zealand's South Island.

"Maud Island frogs have never been found breeding" before, even on their home island, said Lukis, a masters degree student at Victoria University in Wellington. "It's wonderful timing for 2008 'International Year of the Frog' and a Leap Year," she said.



(Photo from Karori Wildlife Sanctuary/Kerri Lukis)

The breeding suggests Maud Island frogs can be bred in other predator-free habitats - strengthening their prospects for survival, said Ben Bell, the biologist overseeing Lukis' studies.

The sanctuary's predator-proof fence gives the frogs a breeding environment like Maud Island that is safe from rats, Bell said.

Maud Island frogs are estimated to number up to 40,000 - most of them on the island from which they take their name and the rest on Motuara Island. Maud Island frogs, one of four native New Zealand frogs, have evolved little over the last 70 million years - they do not croak, live in water or have webbed feet, according to Lukis. Also unlike other frogs, these hatch from the egg as fully formed frogs without going through the tadpole stage. Eggs are laid under rocks or logs and the male sits over the eggs until they hatch as well formed, tailed froglets.

In 2006, 60 Maud Island frogs were released in the frog enclosure at the wildlife sanctuary - a security-fenced area of some 620 acres set up to enable threatened native birds and other species to re-establish their numbers safe from introduced predators like rats, mice, stoats, ferrets and wild cats. All four of New Zealand's surviving native frog species are threatened, with the rarest, Hamilton's frog, numbering less than 300. *Source: WTOPNews.com via AP release March 4, 2008*

**India to Spend Millions to Protect Tigers** - The Indian government plans to spend more than US\$13 million establishing a special ranger force to protect the country's endangered tigers (*Panthera tigris*), following pressure from international conservationists to save the wild cats.

The funding proposed by Finance Minister P. Chidambaram follows the announcement just weeks ago of a \$153 million program to create new tiger reserves, underscoring renewed efforts by India's government to protect the big cats. New estimates suggest India's wild tiger population has dropped from nearly 3,600 five years ago to about 1,411, the government-run Tiger Project said last month.

"The number 1,411 should ring the alarm bells ... The tiger is under grave threat," Chidambaram told Parliament during his budget presentation for 2008-2009.

Chidambaram said the National Tiger Conservation Authority would be granted about \$13.15 million to "raise, arm and deploy" a Tiger Protection Force. While the budget is just a proposal at this stage, Parliament is widely expected to pass it without opposition later this month.

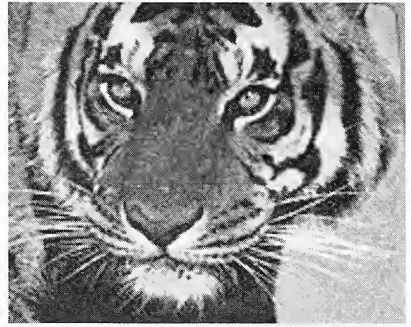
Conservationists welcomed the government's proposal, saying a new force would need to be specially trained and armed to protect tigers from poachers.

"They are finally addressing a very important problem — poaching," Belinda Wright, director of the Wildlife Protection Society of India, said Saturday. "I would imagine that much of the existing system would be improved by the injection of the funds."

The Tiger Project plans to create eight new reserves to protect the tigers, covering an area of more than 11,900 square miles at a cost about \$153 million. Private groups will contribute extra funding.

Some 250 villages, or an estimated 200,000 people, will be relocated under the plan. The government has promised each relocated family about \$25,600.

The population of tigers in Asia is estimated at around 3,500 today compared to nearly 5,000 in 1997, according to Wright.



(Photo: Indian Tiger Trust)

Unless the government drastically improves enforcement steps against poachers and illegal wildlife traders, the number of tigers will continue to dwindle, Wright said. *Source: CTV.ca March 1, 2008*

### **Brown Bears Make a Comeback in the Mountains of Spain -**

The endangered brown bear (*Ursus arctos*), which once roamed the forests of Europe, is showing signs of recovery in one of its remaining strongholds, the Cantabrian mountains of Spain.

Small colonies of brown bears are increasing in the craggy northern cordillera of Asturias and Cantabria. After being menaced by illegal hunters and the encroaching infrastructure of tourism, numbers of fertile females have doubled in the past decade and traces of bear activity have tripled in the last two years. A colony of 100 bears is thought to inhabit the west of the region, with another smaller colony of about 30 to the east. The reclusive animals are still on the endangered list and their long-term survival remains under threat because the number of animals remains small despite reproduction becoming consolidated in recent years.

"We would like to establish a corridor between the separate colonies to increase the bears' genetic diversity and reproductive velocity, and thereby their chances of survival," said Guillermo Palomero, head of the Santander-based Brown Bear Foundation (Fundacion Oso Pardo). "That is the only sure way of protecting them from becoming extinct."

A joint study by the foundation and Spain's environment ministry based on 16 years of observation of the bears in their natural habitat strongly recommends trying to establish a connection between the colonies, which are 30 miles apart, to safeguard the local population. While brown bear numbers have been boosted in the Pyrenees by importing animals from Slovenia, this is not an option "because Cantabria's brown bears are a pure species unique in Europe," Mr Palomero said.

The revival is partly due to more effective control of illegal hunters, or *furtivos*, who now face two years in jail and a fine of up to \$300,000 (£230,000) for the "ecological crime" of killing a bear.

"*Furtivos* still exist. There may be fewer huntsmen with guns, but more traps and poison are laid for wolves and wild boars. They still do a lot of damage," said Mr Palomero. "Collaboration between the authorities and voluntary organisations has been crucial in consolidating bear populations during 2007. We mustn't drop our guard or cry victory too soon.

"The turning point was when we realised the importance of groups of females with their young cubs. While the males roam across country, the mother and her cubs stay within a defined area. We must protect them in their habitat, because they are the guarantee of the future."

Ursine history was made in the winter of 2006 when the foundation revealed that Cantabria's brown bears had stopped hibernating. The region's winters had become warmer in recent years, enabling the bears to forage for enough food all year round. Bears are well known for their propensity to slumber through the winter to the point of biological shutdown. But their behaviour went through a revolutionary change when female brown bears with young cubs found enough nuts, acorns, chestnuts and berries on Spain's bleak northern mountainsides to make the effort of staying awake and hunting for food "energetically worthwhile". *Source: the Independent.com February 28, 2008*

**Beck's Petrel Flies Back from Presumed Extinction** - A bird not seen for almost 80 years has been discovered in the Pacific to the delight of conservationists. Only two records of Beck's petrel (*Cavia Porcellus*) existed previously, from the late 1920s when ornithologist Rollo Beck collected two of the tube-nosed seabirds on his quest for museum specimens from the region.

The small tube-nosed seabird was first described by Rollo Beck, an ornithologist and collector of museum specimens. The petrel, which now bears his name, was previously only known from two specimens he collected in 1928 and 1929 during an expedition to the region.



Photo by Hadoram Shirihi

Now, an expert on a ship in the Bismarck Archipelago, north-east of Papua New Guinea, has photographed more than 30 Beck's petrels and his account was being published last month in the Bulletin of the British Ornithologists' Club. Young birds were amongst the group indicating that the birds have a breeding site close by.

Hadoram Shirihi, an ornithologist from Israel, led the two-week voyage last summer. He said: "I may have seen then in 2003 on a previous trip which made me eager to return. I wanted to know more about these amazing petrels and understand better how we can help them.

"This re-finding of Beck's Petrel is exceptional news and congratulations to Hadoram Shirihi for his effort and energy in rediscovering this 'lost' petrel," commented Dr. Stuart Butchart, BirdLife's Global Species Programme Coordinator.

Confirming the existence of Beck's Petrel was difficult because it is similar to Tahiti Petrel *Pseudobulweria rostrata*, few people have looked for it at sea, and it may be nocturnal at the breeding grounds. "There are numerous atolls and islands where it may breed", said Dr. Butchart. "However, the remaining population may be small."

Hopes that the bird had not gone extinct were raised in Australia two years ago when tour guide Richard Baxter thought he had seen a Beck's petrel in the Coral Sea off Queensland. Rare bird experts rejected this sighting because photos were not sufficiently clear. Hadoram Shirihi's pictures of the species' more recent appearance have left no doubt, however.

The species' protection could be hampered by several threats, including rats and cats at breeding grounds, which have yet to be found, and widespread logging and land clearance for palm oil plantations. Research last year revealed the extent of logging on New Britain, one of the islands making up Papua New Guinea. Experts believe the Beck's petrel may only visit nesting burrows at night, which will make its protection even more complex. *Sources: ScienceDaily.com 3-11-08; BirdLife International contributed materials used in this article. Adapted from materials provided by Royal Society for the Protection of Birds.*

**Researchers Spot Rare White Killer Whale in Alaska** - The white killer whale (*Orcinus orca*) spotted in Alaska's Aleutian Islands sent researchers and the ship's crew scrambling for their cameras. The nearly mythic creature was real after all.

"I had heard about this whale, but we had never been able to find it," said Holly Fearnbach, a research biologist with the National Marine Mammal Laboratory in Seattle who photographed the rarity. "It was quite neat to find it."

The whale was spotted in February by scientists aboard the Oscar Dyson, a National Oceanic and Atmospheric Administration research ship. The whale had been spotted once in the Aleutians years ago but had eluded researchers since, even though they had seen many of the more classic black and white whales over the years.

While the whale's saddle area was white, other parts of its body had a subtle yellowish or brownish



(Photo: National Geographic)

color. The whale is probably not a true albino given the coloration, said John Durban, a research biologist at NOAA's Alaska Fisheries Science Center in Seattle. Durban said white killer whales have been spotted elsewhere in the area twice before: in 1993 in the northern Bering Sea and in 2001 near Adak in the central Aleutians.

While Alaska researchers have documented thousands of killer whales during summer surveys, this was something new and exciting, Durban said. "This is the first time we came across a white killer whale," Durban added.

The researchers observed several pods over a two-week period. The white whale was in a family group of 12. It was seen about 3km off Kanaga Volcano on 23 February. The ship stayed with the whale for about 30 minutes. Source: *Taipei Times*. Com March 8, 2008

**Program Hatches 1000th Kiwi** - A rescue program in Totorua to incubate, raise and release kiwis back into the wild are awaiting the hatch of their 1000th chick. The survival prospects of New Zealand's national bird are looking up with the hatch of this North Island brown kiwi (*Apteryx mantelli*) egg which was incubated at Rotorua's Kiwi Encounter.

The program has successfully incubated, raised and returned almost 1000 kiwi back to the wild where they stand a 65% chance of reaching adulthood. Without the program, only 5% or kiwi reach adulthood whereas a 20% survival rate is needed for a population to grow.

Save the Kiwi Trust Executive Director Michelle Impey said the 1000th kiwi egg symbolizes the countless hours of work that community volunteers, Department of Conservation and captive facilities around the country have put in since the program's inception in 1994.

The milestone-making kiwi egg was found in Waimarino, Bay of Plenty. The kiwi born from the egg will be returned to Waimarino once it reaches goal weight, enabling it to successfully fight off predators. Source: *STUFF.co.nz* February 5, 2008

**Highly Endangered Round Island Boa Captive Population Doubles at Durrell** -The Durrell Wildlife Conservation Trust is hailing a breakthrough in the husbandry of the Round Island boa (*Casarea dussumieri*), one of the world's rarest snakes. Once found throughout Mauritius and the surrounding islands, the species is today limited to Round Island off the Mauritius coast. The world's only captive population is at Durrell's Jersey headquarters where animal managers have recently made breakthroughs in increasing egg production and increasing the survival rates of young. The Trust began keeping the species in the 1980's, but the animals proved highly difficult to manage due to their specialized diet, and it has not been until recent years that advances in the snake's husbandry have been made, leading the Jersey population to double from 10 to 20 in five years.

Alasdair McMillan, a senior keeper at Durrell who works with the species said: "Working with this unique species is a real challenge. They are very shy, easily stressed, and a specialized lizard feeder." The snakes preferred food is geckos and lizards, and some specimens refuse to eat anything else. But since the 1990's staff at Durrell learned that the animals could be encouraged to eat mice if chick thigh meat was first used to scent them.

The Round Island boa is unique among all vertebrates in that it has a split top jaw which scientists believe may help it get a better grip on its lizard prey when hunting. It also changes color throughout the day, from slate-grey in the morning, becoming a ghost grey by evening, making it only one of a handful of the 2,700 snake species able to alter their natural color.

Durrell and its partner organizations have carried out an extensive restoration of the snakes' habitat on Round Island, removing invasive species like goats and rabbits, and allowing native flora and fauna to recover. Source: *WILDLIFEEXTRA.com* February 27, 2008.

# AAZK Membership Application (Please Print)

check here if renewal [    ]

Name \_\_\_\_\_

Email \_\_\_\_\_

Mailing Address \_\_\_\_\_

City \_\_\_\_\_ State/Province \_\_\_\_\_ Zip/Postal Code \_\_\_\_\_ Country \_\_\_\_\_

<input type="checkbox"/> <b>U.S. Members</b> <b>\$40.00 Professional</b> <i>Full-time Keepers</i>	<input type="checkbox"/> <b>Canadian Members</b> <b>\$40.00 Professional</b> <i>Full-time Keepers</i>
<input type="checkbox"/> <b>\$35.00 Affiliate</b> <i>Other staff &amp; volunteers, or those interested in the profession but not associated with a zoo or aquarium</i>	<input type="checkbox"/> <b>\$40.00 Affiliate</b> <i>Other staff &amp; volunteers or those interested in the profession but not associated with a zoo or aquarium</i>
<input type="checkbox"/> <b>\$25.00 Student</b> <i>Must supply a copy of current student ID at time of application</i>	<input type="checkbox"/> <b>\$25.00 Student</b> <i>Must supply a copy of current student ID at time of application</i>
<input type="checkbox"/> <b>\$65.00 or up - Individuals Contributing/U.S.</b>	<input type="checkbox"/> <b>\$65.00 or up - Individuals Contributing/Canada</b>
<input type="checkbox"/> <b>\$125.00 or up Institutional/U.S.</b> <i>(requires Board approval)</i>	<input type="checkbox"/> <b>\$125.00 or up Institutional/Canada</b> <i>(requires Board approval)</i>
<input type="checkbox"/> <b>\$125.00 Commercial Members</b> <i>(i.e. Animal-related food &amp; supplies)</i>	<input type="checkbox"/> <b>Library Only</b> <b>\$40.00 Library</b> <i>Available ONLY to public &amp; university libraries (in U.S.)</i>
<input type="checkbox"/> <b>International Members</b> <b>\$55.00 International</b> <i>All members outside U.S. &amp; Canada regardless of category</i>	

Zoo Affiliation (if any) \_\_\_\_\_

Zoo Address \_\_\_\_\_

Title \_\_\_\_\_

<input type="checkbox"/> <b>My check is enclosed (AAZK, Inc.)</b> <i>(U.S. Funds Only)</i>	<input type="checkbox"/> <b>Please charge my credit card</b>
---	--

MASTERCARD      VISA      Card # \_\_\_\_\_ - \_\_\_\_\_ - \_\_\_\_\_ - \_\_\_\_\_

Name on card \_\_\_\_\_ Expiration date \_\_\_\_\_

Signature \_\_\_\_\_

Mail this application to: AAZK Administrative Offices, 3601 S.W. 29th, Suite 133 Topeka, KS 66614-2054. Make checks/money orders payable to AAZK, Inc. Must be in U. S. FUNDS ONLY. Membership includes a subscription to *Animal Keepers' Forum*. The membership card is good for free or discounted admission to many zoos and aquariums in the U.S. and Canada.



**AMERICAN  
ASSOCIATION  
of ZOO KEEPERS**

*"Dedicated to  
Professional Animal Care"*

3601 S. W. 29th St.  
Suite 133  
Topeka, KS  
66614-2054  
U.S.A.

Return Service Requested

Non-Profit Organization  
U.S. POSTAGE PAID  
Topeka, KS  
Permit # 646



\*\*\*\*\*MIXED AADC 640  
9/09 GRP 1  
National Zoo Library TRAY 10  
Visitors Center - MRC551  
P.O. Box 37012  
Washington DC 20013-7012



Animal Keepers' Forum  
24th Anniversary  
1974 - 2008

SMITHSONIAN INSTITUTION LIBRARIES  
ZOOLOGY  
MUSEUM OF NATURAL HISTORY  
BIOLOGY  
BOTANY  
GEOLOGY  
ASTRONOMY  
PHYSICS  
CHEMISTRY  
METEOROLOGY  
OCEANOGRAPHY  
ENVIRONMENTAL SCIENCE  
POLYMER SCIENCE  
MATERIALS SCIENCE  
NANOTECHNOLOGY  
SPACE SCIENCE  
COMPUTER SCIENCE  
ENGINEERING  
MEDICAL SCIENCE  
HUMANITIES  
SOCIAL SCIENCES  
LAW  
BUSINESS  
ARTS  
LIBRARY  
SPECIAL COLLECTIONS  
PRESERVATION  
SERIALS  
REFERENCE  
CIRCULATION  
DOCUMENTATION  
INFORMATION SERVICES  
PUBLICATIONS  
EDUCATION  
OUTREACH  
COMMUNICATIONS  
ADMINISTRATION  
FINANCE  
HUMAN RESOURCES  
LEGAL COUNSEL  
PLANNING  
RESEARCH  
TECHNOLOGY  
TRAINING  
ZOOLOGY  
MUSEUM OF NATURAL HISTORY  
BIOLOGY  
BOTANY  
GEOLOGY  
ASTRONOMY  
PHYSICS  
CHEMISTRY  
METEOROLOGY  
OCEANOGRAPHY  
ENVIRONMENTAL SCIENCE  
POLYMER SCIENCE  
MATERIALS SCIENCE  
NANOTECHNOLOGY  
SPACE SCIENCE  
COMPUTER SCIENCE  
ENGINEERING  
MEDICAL SCIENCE  
HUMANITIES  
SOCIAL SCIENCES  
LAW  
BUSINESS  
ARTS  
LIBRARY  
SPECIAL COLLECTIONS  
PRESERVATION  
SERIALS  
REFERENCE  
CIRCULATION  
DOCUMENTATION  
INFORMATION SERVICES  
PUBLICATIONS  
EDUCATION  
OUTREACH  
COMMUNICATIONS  
ADMINISTRATION  
FINANCE  
HUMAN RESOURCES  
LEGAL COUNSEL  
PLANNING  
RESEARCH  
TECHNOLOGY  
TRAINING